Evaluation and comparison of depression, anxiety, self-esteem, and social adaptation in hemodialysis and peritoneal dialysis patients

[1]Ayten Girgin, [2]Mahmut Yavuz

[1]Department of Internal Medicine, Bursa City Hospital, Bursa, Turkey
[2]Departman of Nephrology. Uludağ University, Bursa, Turkey

ABSTRACT

Objectives: The number of end-stage renal failure patients undergoing dialysis is increasing in our country and all over the world. Many patients continues with hemodialysis or peritoneal dialysis lifelong though kidney transplantation is the gold standard renal replacement therapy. The purpose of this study is to compare depression, anxiety, self-esteem and social adaptation in hemodialysis and peritoneal dialysis patients.

Methods: Research consist of 30 hemodialysis and 30 peritoneal dialysis patients who are undergoing dialysis treatment in Uludag University Medical Faculty Hemodialysis and Peritoneal Dialysis Unit. Demographic Data Form, Beck Depression Inventory, Coopersmith Self-Esteem Scale, Social Adaptation Self-evaluation Scale, State and Trait Anxiety Scale were administered to patients.

Conclusion: Self-esteem score of peritoneal dialysis group is significantly high from the hemodialysis group. Peritoneal dialysis group average point was 21.0, hemodialysis group average point was 17.5 on Coopersmith Self-Esteem Scale. There was no significant difference in depression, anxiety and social adaptation scale scores.

Keywords: Depression, Anxiety, Self-Esteem, Hemodialysis, Peritoneal Dialysis

According to the data from the Turkish Society of Nephrology, the prevalence of end-stage renal disease (ESRD) is increasing in our country. [1] In Turkey, the number of patients with ESRD, which was 491 per million population in 2005, has increased approximately twice in numbers in 11 years and reached 933 in 2016, while by 2019 the prevalence and incidence of ESRD were reported as 1007.6 and 150.5 per million population, respectively. [2] Moreover, Turkey was among the top 25 countries with the highest increase rate in ESRD prevalence all over the world between 2009-2018. [3] According to the Turkish Society of 2020 Registry Report, there are 60,558 hemodialysis patients, 3.387 peritoneal dialysis patients, and 19,405 renal transplant patients in Turkey. [4]

Depression is the most frequently reported psychiatric condition in chronic kidney disease (CKD) patients, especially in those with ESRD. [5] The prevalence of depression among patients with CKD can be as high as 100%, depending on the diagnosis criteria and the studied population. [5]

Patients on dialysis have a higher prevalence of depression and a higher risk of hospitalizations due to psychiatric complications compared to their pre-dialysis and post-transplant counterparts. [6] Several

behavioral factors including the burden of self-care, reduced functionality, and the psychology of having a chronic illness and being needed to cope with the disease itself, lead to the development and progression of depression. [7] Nearly 50% of adult CKD patients also have depression and they have 9% increased tendency to be treated with antidepressants. [7] Adequate screening and timely diagnosis of depression throughout the disease are of importance to promote better outcomes in CKD patients. [8]

In this study, we aimed to investigate the psychological status of dialysis patients and compared the patients undergoing peritoneal dialysis and hemodialysis.

METHODS

Study population

Between February 2014 and July 2014, 30 hemodialysis and 30 peritoneal dialysis patients, aged 18 to 65, who was in the routine dialysis program with follow-up in Uludag University Nephrology Department, who had no previous psychological disorders, and were able to read and understand the questions themselves, were included in the study. Demographic data such as age and gender characteristics, duration of dialysis, education level, and level of income were recorded. A total of 5 inventories were used for the evaluation of the psychological status of the patients: Beck Depression Inventory, Coopersmith Self-Esteem Inventory, State-Trait Anxiety Inventory, and Social Adjustment and Self-Evaluation Inventory. This research was approved by Uludag University Faculty of Medicine Medical Research Ethics Committee (February 2014, 2014-3/9).

Psychological Evaluations
Beck Depression Inventory (BDI)

BDI was developed by Beck et al. in 1961 by including the most common symptoms in patients with depression. [9] The validity and reliability of BDI in Turkey have also been reported. [10] BDI consists of 21 items and it's items are evaluated with a score between 0 and 3.

Score distributions for the diagnosis of depression;
- Scores 11-17: Mild depression
- Scores 18-29: Moderate depression
- Scores 30-63: Severe depression

Coopersmith Self-Esteem Inventory

Coopersmith self-esteem inventory is a 57-item scale developed by Coopersmith in 1967 and it is helps with self-esteem scoring. [11] Inventory items are answered in a yes-no format, answers that are accepted as indicators of high self-esteem are given 1 point, and the others are given 0 points. [12] The higher the score obtained from the inventory, the higher the self-esteem of individuals. The study regarding the validity and reliability of the inventory in our country was conducted by Gucluray in 1989. [13]

State-Trait Anxiety Inventory (STAI 1- STAI 2)

The State-Trait Anxiety Inventory was developed by Spielberger and Lushene in 1970. [14] It is two separate tests that were adapted into Turkish literature by Oner in 1977. [15] According to the severity of emotion-behavior in the items of the state anxiety scale (STAI 1) which uses the scoring system as 1) not at all, 2) somewhat, 3) moderately and 4) very much, is very sensitive in assessing sudden changes in emotional reactions. According to the frequency of emotion-behaviors in the items of the trait anxiety scale (STAI 2) which uses the scoring system as 1) seldom, 2) sometimes, 3) often, and 4) almost always, it is very sensitive in measuring the persistence of anxiety (15). High scores indicate high anxiety levels, low scores indicate low anxiety levels.

Social Adaptation Self-Evaluation Scale (SASS)

This scale, which is used to measure social functioning, was developed by Bosc et al. in 1997. [16] Validity and reliability of it were proved by Akkaya et al. in 2008 and were adapted into Turkish literature. [17] The first item of the scale, which consists of 21 items, is filled according to the occupation status, and the remaining 20 questions are answered in the range of 0-3 points. For the person to have normal social functioning, it is necessary to get at least 35 points. If the person gets a score below 25 points, it is considered that there is a problem in social functioning [17].

Statistical analysis

Statistical analyses were conducted using SPSS statistical package program (version 22.0). The distribution of the data was investigated using Shapiro-Wilk normality test. In case the quantitative data is normally distributed independent-samples t-test or else Mann-Whitney U test were used for binary comparison. The categorical data were analyzed by using either Pearson's chi-square, Fisher-Freeman-

Table 1. Socio-Demographic Characteristics of the Patients

	Hemodialysis		Peritoneal dialysis		*p*
	N	%	N	%	
Gender					
Women	11	36.7	15	50	0.434
Men	19	63.3	15	50	
Marital status					
single	5	16.7	7	23.3	0.808
Married	23	76.7	22	73.3	
Divorced	2	6.7	1	3.3	
Educational Status					
Primary school	12	40	12	40	0.533
Secondary school	4	13.3	8	26.7	
Highschool	6	20	6	20	
Undergraduate	7	23.3	4	13.3	
Graduate	1	3.3	0	0	
Total	30	100	100	100	

Halton exact, or Fisher's exact. A p value equal to 0.05 was considered statistically significant.

RESULTS

The demographic characteristics of the patient groups are presented in Table 1. There was no difference between hemodialysis (HD) and peritoneal dialysis (PD) groups in terms of gender, mean age, duration of dialysis, marital status, and educational status. The mean age in HD patients was 54 years, and the mean age in PD patients was 48.5 years. The mean dialysis period in HD patients was 4 years, while it was 6.5 years in PD patients.

There were no significant differences between HD and PD patients with regards to Beck Depression Scale scores (Table 2).

The mean scores of the Coopersmith Self-Esteem Inventory scores significantly higher in PD patients compared to HD patients ($p = 0.001$; Table 3).

There were no significant differences between two patient groups with regards to STAI-1 and STAI-2 scores (Table 4 and 5).

SASS scores were found similar in both patient groups (Table 6).

DISCUSSION

CKD is a progressive chronic disease that requires education on lifestyle changes, nutrition, fluid restriction, and dialysis. [18, 19] However, due to the rapid increase in ESRD incidence and the chances of transplantation is low, the vast majority of these patients living with PD or HD throughout their lives. [20-22] Studies comparing the patient groups on psychiatric morbidity, which is frequently seen in CKD, can provide a valuable idea about which dialysis method can be preferred at first.

Table 2. Comparison of Beck Depression Inventory scores in hemodialysis and peritoneal dialysis patients

Beck Depression Inventory						
	N	Mean	Std. Dev.	Minimum	Maximum	*p*
Hemodialysis	30	11.5	10.005	0	36	0.31
Peritoneal dialysis	30	9.5	8.532	0	40	

Table 3. Comparison of Coopersmith Self-Esteem Inventory scores in hemodialysis and peritoneal dialysis patients

Coopersmith Self-Esteem Inventory						
	N	Mean	Std. Dev.	Minimum	Maximum	*p*
Hemodialysis	30	17.5	4.009	7	23	0.001
Peritoneal dialysis	30	21	3.739	11	25	

Table 4. Comparison of the STAI-1 scores in hemodialysis and peritoneal dialysis patients

STAI-1						
	N	Mean	Std. Dev.	Minimum	Maximum	*p*
Hemodialysis	30	36.5	10.674	20	68	0.314
Peritoneal dialysis	30	34.5	9.401	20	56	

Depression is a common psychiatric disorder in dialysis patients. [23, 24] Studies report that depression makes the person susceptible to infections by suppressing the immune system, therefore, increased mortality rates. [25, 26] Therefore, screening of dialysis patients for depression and referral of risky people to psychiatry clinics are important in clinical follow-up. In our study, the BDI score of PD patients was 2 points lower on average than HD patients, however, this difference was not significant (*p* = 0.310).

In ESRD patients, being dependent on the device used in the treatment and medical team, constant thoughts of death and worries about the future, and deterioration in family relations and work patterns due to their illness adversely affect the patient's self-body image. [27] This can cause the person to lose self-confidence, damage their social relationships, and in the end, stop to look for treatment. [27] In this sense, self-esteem is important for patients receiving dialysis treatment to cope with their disease and adapt to treatment. [27] In our patients, the self-esteem scores of the PD group were significantly higher than the HD group (*p* = 0.001).

Anxiety is a normal part of our daily lives; It is considered normal if it occurs in the presence of danger or threat and if it is suitable for the situation in terms of duration and severity. Three criteria show that anxiety is pathological; violence, duration, and disruption of functionality that affects daily life. Losing a job due to an anxiety disorder is higher than that caused by major depression and has been shown to cause an increase in the frequency of cardiovascular events . [28, 29] In our study, STAI 1 and STAI 2 scores of PD patients were found to be similar to HD patients.

Social functionality is defined as a person's ability to function at work, at home, or in social activities. It also includes the person's ability and competence to maintain a spouse, parent, and social relationship. Many studies have been conducted on the loss of social functionality in depression. [16, 17] In our study,

Table 5. Comparison of the STAI-2 scores in hemodialysis and peritoneal dialysis patients

STAI-2						
	N	Mean	Std. Dev.	Minimum	Maximum	*p*
Hemodialysis	30	43	9.844	27	72	0.088
Peritoneal dialysis	30	40	9.519	22	58	

Table 6. Comparison of SASS scores in hemodialysis and peritoneal dialysis patients

Social Adaptation Self-evaluation Scale						
	N	Mean	Std. Dev.	Minimum	Maximum	*p*
Hemodialysis	30	43.5	8.589	21	59	1
Peritoneal dialysis	30	44	7.85	30	59	

we aimed to investigate the effect of dialysis modality on social functionality by comparing the social adjustment of dialysis patients. The fact that the PD group is less dependent on machinery and healthcare workers for dialysis compared to the HD group may cause these patients to have higher social functionality. In our study, the score of the PD group was found to be higher than the HD group, although it was not statistically significant.

In conclusion, it is observed that psychological problems, especially depression and anxiety, increase in dialysis patients as in all chronic diseases. For this reason, patients' compliance with treatment may decrease and this can affect survival. In our study, we found less depression and anxiety, more self-esteem, and social cohesion in the peritoneal dialysis patients. Decreased addiction of patients, being active in social life, less exposure to interventional procedures, etc. may be effective in this situation. More studies with larger patient groups are required to identify the psychological status of the patients who need continuous healthcare, as it is necessary to diagnose a psychological issue before it is too late for the patient.

CONCLUSION

Authors' Contribution

Study Conception: AG,; Study Design: AG,; Supervision: MY,; Data Collection and/or Processing: AG,; Statistical Analysis and/or Data Interpretation: AG,; Literature Review: AG,; Manuscript Preparation: AG, MY and Critical Review: MY.

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