

Evaluating Quality of Life in Patients Undergoing Hemodialysis and Peritoneal Dialysis

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Abstract:

Objectives: The aim of this study was to evaluate quality of life in patients undergoing hemodialysis or peritoneal dialysis treatment because of chronic kidney disease.

Materials-Methods: Patients followed up in Hemodialysis Center and Peritoneal Dialysis Unit of Dumlupınar University Evliya Celebi Training and Research Hospital were included in this study. The inclusion criteria for the study were Patients undergoing a treatment for at least one year and without dialysis failure. First of all, hemogram, serum albumin, phosphorus and Kt/v values of patients were measured. Then Quality Of Life questionnaire (SF-36 short form) was conducted for each patient. The parameters obtained were analyzed by SPSS-18 statistical package. In statistical analysis $p < 0.05$ was considered to be significant.

Results: Total 47 patients (30 males, 17 females) who continued hemodialysis and peritoneal dialysis for at least one year and without dialysis failure were included in our study. There were no significant differences in age and gender distribution of the patients (the average age of HD patients 59.2 ± 13.1 ; the average age of PD patients 53.1 ± 13.5 ; $p > 0.05$). Albumin levels in hemodialysis patients was significantly higher compared to PD patients, however hemoglobin levels were higher but not significantly in PD patients compared to in HD patients. Assuming eight parameters in SF-36 quality of life questionnaire, the parameters which were significantly higher in PD patients compared to patients undergoing HD treatment were; social function, pain and physical function ($p < 0.05$). Vitality / energy scores of HD patients were higher but not significantly compared to PD patients.

Conclusions: As a conclusion, according to our questionnaire evaluation PD patients were found to have better quality of life compared to HD patients. Further studies are required in order to verify the data of this study.

Keywords: hemodialysis, peritoneal dialysis, SF-36 quality of life

1. INTRODUCTION

Chronic renal failure (CRF), is a progressive and irreversible loss in renal function. It is defined as fall in Glomerular filtration rate (GFR) to less than $60 \text{ ml / min / } 1.73 \text{ m}^2$ for at least 3 months. When End-Stage Renal Failure (ESRF, $\text{GFR} < 15 \text{ ml / min}$) comes, the treatments is dialysis or transplantation. Considering the difficulties in finding donor and tissue compatibility, dialysis options seem more advantageous compared to transplantation (1,2).

It is known that biological, psychological and social well-being deteriorates in patients with ESRD and patients are more exposed to symptoms which affect their daily life. Renal replacement treatment (RRT) partially corrects changes which affect symptoms of patients and quality of life. However, there are many studies reporting that depression and anxiety are more frequent in patients undergoing treatment of hemodialysis (HD) and peritoneal dialysis (PD). As well as there are studies reporting that quality of life is much more deteriorated in patients undergoing HD compared to patients undergoing PD, there are also researches reporting that there is no difference between two dialysis treatments (3,4,5).

The most commonly used scale for evaluating the quality of life in dialysis patients is the Short Form-36 (SF-36). (6,7,8).

Our aim of this study was to evaluate quality of life in patients undergoing hemodialysis or peritoneal dialysis treatment that we follow up because of chronic renal failure.

2. MATERIALS-METHODS

Total 47 Patients who are followed up in Hemodialysis Center and Peritoneal Dialysis Unit of Dumlupınar University Evliya Celebi Training and Research Hospital, agreed to study and answered all questions in the study were included in our study. The inclusion criteria for the study were Patients undergoing a treatment for at least one year and without dialysis failure. Hemogram, serum albumin, phosphorus and Kt/v values of all patients were measured. Then Quality Of Life questionnaire (SF-36) was conducted for each patient.

Short Form-36 (SF-36):

The SF-36 is a scale which has been developed to evaluate the quality of life, consisting of 36 articles and a scale which people evaluate themselves. Scale; assuming last 4 weeks, ensures measurement of eight different functions including physical function (10 articles), social function (2 articles), role limitations due to physical problems (4 articles), role limitations due to emotional problems (3 articles), mental health (5 articles), energy / vitality (4 articles), pain (2 articles), general perception of health (5 articles).

Evaluation is done in Likert-type except for Articles 4 and 5, fourth and fifth Articles are answered as yes / no. Subscales are evaluated the health range from 0 to 100. The most prominent feature of the scale is its physical function and measuring relevant abilities. The SF-36 has been applied in the dialysis group and it has been stated to be useful.

Evaluation of Data:

Percentage, t-test and Levene's test was used in statistical evaluation of parameters obtained. Data were analyzed in SPSS 18 statistical package. It was considered as significant for the results to be $p < 0.05$ at the 95% confidence interval.

3. RESULTS

Total 47 patients (30 males, 17 females) who continued hemodialysis and peritoneal dialysis for at least one year, undergoing 25 hemodialysis and 22 peritoneal dialysis treatments were included in our study. There were no significant differences in age and gender distribution of the patients (the average age of HD patients 59.2 ± 13.1 ; the average age of PD patients 53.1 ± 13.5 ; $p > 0.05$). When the serum phosphorus and Kt / v values were examined from measured parameters, there was no significant difference in hemodialysis and peritoneal dialysis patients ($p > 0, 05$). However, serum albumin levels in hemodialysis patients was significantly higher compared to peritoneal dialysis patients ($p = 0.007$). As for hemoglobin levels were higher but not significantly in peritoneal dialysis patients compared to in hemodialysis patients (HD Hgb: $11, 7 \pm 1, 9$; PD Hgb: $12 \pm 1, 6$; $p > 0, 05$).

When eight parameters in SF-36 questionnaire are taken into account and the quality of life of patients were evaluated, the parameters which were significantly higher in peritoneal dialysis patients compared to patients undergoing hemodialysis treatment were; **social function** (HD: 60.4 ± 29.9 ; PD: 77.4 ± 22.8 ; $p = 0.033$), **pain** (HD: 67.1 ± 22.9 ; PD: 80.6 ± 24.6 ; $p = 0.048$) and **physical function** (HD: 68.1 ± 19.9 ; PD: 79.7 ± 19.2 ; $p = 0.049$). **Vitality / energy** scores of hemodialysis patients were higher but not significantly compared to peritoneal dialysis patients. (HD: 63.2 ± 14.2 PD: 60.9 ± 11.6 ; $p > 0.05$) (**Table 1**)

Table 1. Characteristics of Study Population

	Dialysis Type	N	Mean	Std. Deviation	Std. Error Mean	Sig. (2-tailed)
Kt/V	HD	25	1,3572	,13284	,02657	,000
	PD	22	3,2414	,88349	,18836	,000
Hemoglobin	HD	25	11,7880	1,97997	,39599	,660
	PD	22	12,0227	1,60770	,34276	,656
Serum Albumin	HD	25	3,7960	,33476	,06695	,007
	PD	22	3,4455	,50401	,10746	,009
Serum Potassium	HD	25	4,4360	1,25262	,25052	,166
	PD	22	3,9318	1,19339	,25443	,165
General Perception of the Health	HD	25	60,0000	6,00000	1,20000	,105
	PD	22	64,0000	10,25392	2,18614	,118
Role Limitation due to	HD	25	70,4000	23,06332	4,61266	,614

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Physical Matters	PD	22	73,9091	24,20726	5,16100	,615
Vitality/Energy	HD	25	63,2400	14,24278	2,84856	,545
	PD	22	60,9091	11,63291	2,48015	,540
Mental Health	HD	25	58,0400	8,53659	1,70732	,284
	PD	22	61,1818	11,28689	2,40637	,294
Role Limitation due to Emotional Matters	HD	25	75,8800	22,09133	4,41827	,845
	PD	22	77,1818	23,33531	4,97511	,846
Physical Function	HD	25	68,1600	19,92419	3,98484	,050
	PD	22	79,7273	19,25810	4,10584	,049
Social Function	HD	25	60,4000	29,92769	5,98554	,036
	PD	22	77,4091	22,84661	4,87091	,033
Pain	HD	25	67,1600	22,95771	4,59154	,058
	PD	22	80,6818	24,60814	5,24647	,048
Age	HD	25	59,2800	13,10382	2,62076	,121
	PD	22	53,1364	13,51294	2,88097	,122

When general perception of health, role limitations due to physical problems, role limitations due to mental health and emotional problems were examined, although scores were higher in peritoneal dialysis patients they were not considered significant ($p > 0.05$).

4. DISCUSSION

Despite developments in renal replacement treatments, it is known that quality of life of patients with end-stage renal failure is lower compared to healthy individuals(9). Therefore, it is important to investigate physical and mental status of patients with chronic renal failure in order to demonstrate their quality of life. Research conducted by using the SF-36 quality of life scale for patients with chronic renal failure are available in our country and abroad for this purpose (7,9,10).

In Research conducted, kidney transplantation was made and variety of patient populations with chronic renal failure, including patients undergoing hemodialysis, undergoing peritoneal dialysis and pre-dialysis patient group, were investigated by comparison with each other and with the normal population (6, 7, 9, 10, and 11).

In study performed by Mittal et al in the United States by using SF-36 for 134 hemodialysis patients, scores of physical function and mental health were determined to be lower compared to the normal population. In a study conducted by Guney et al in our country in 2001, scores of physical function and mental health of patients with end-stage renal failure were similarly found lower(3,12).

When the quality of life of patients undergoing peritoneal dialysis and hemodialysis was compared in earlier researches, different results were found (3, 9, and 10). Diaz-Buxom et al found perceptions of quality of life for PD and HD patients groups similar (7). According to the results of the SF-36 in a multicenter study including 698 HD and 230 PD patients, physical function and general health subscales in HD patients were found better compared to PD patients (11). In study performed by Ozcetin A. et al in 2009, with 54 HD and 13 PD patients, no significant difference was determined in quality of life (6). As for in our study, social function, pain and physical function scores evaluating quality of life in the SF-36 questionnaire of PD patients were determined significantly higher compared to HD patients. In this case, the quality of life of PD patients may be better compared to HD patients and provide data to clinicians for increasing use of PD.

Consequently, Evaluating Quality of Life in Patients with CRF undergoing Hemodialysis and Peritoneal Dialysis treatment is important as it is closely related with the compliance of patients to treatment. Clinical evaluation of these patients should not be focused only on morbidity and mortality, also quality of life should be evaluated periodically and factors affecting this should be determined. In our study, quality of life has been found better in peritoneal dialysis patients compared to hemodialysis patients and further studies are required in order to verify the data of this study.

REFERENCES

- [1]. Kutner NG. Assessing end-stage renal disease patients' functioning and well-being: measurement approaches and implications for clinical practice. *Am J Kidney Dis* 1994; 24:321-333.
- [2]. Andreoli TE, Evanoff GV, Ketel BL. Chronic renal failure. TE Andreoli, CJ Bennet, CJ Crapenter, F Plum, LH Smith (Eds.), *Cecil Essentials of Medicine*, Philadelphia, W.B. Saunders, 1993, p.245.

- [3]. Mittal SK, Ahern L, Flaster E, Maesaka JK, Fishbane S. Self-assessed physical and mental function of haemodialysis patients. *Nephrol Dial Transplant* 2001; 16:1387-1394.
- [4]. Perneger TV, Leski M, Chopard-Stoermann C, Martin PY. Assessment of health status in chronic hemodialysis patients. *J Nephrol* 2003; 16:252- 259
- [5]. Bakewell AB, Higgins RM, Edmunds ME. Quality of life in peritoneal dialysis patients: decline over time and association with clinical outcomes. *Kidney Int* 2002; 61:239-248.
- [6]. Ozcetin A, Bicik Bahcebasi Z, Bahcebasi T, Cinemre H, Ataoglu A. Quality of life and psychiatric symptom distribution in chronic dialysis patients; *Anatolian Journal of Psychiatry* 2009; 10:142-150
- [7]. Diaz-Buxo JA, Lowrie EG, Lew NL, Zhang H, Lazarus JM. Quality-of-life evaluation using Short Form 36: comparison in hemodialysis and peri-toneal dialysis patients. *Am J Kidney Dis* 2000; 35:293-300.
- [8]. Chen YC, Hung KY, Kao TW, Tsai TJ, Chen WY. Relationship between dialysis adequacy and quality of life in long-term peritoneal dialysis patients. *Perit Dial Int* 2000; 20:534-540.
- [9]. Sağduyu A, Sentürk VH, Sezer S, Emiroğlu R, Ozel S. Psychiatric problems, life quality and compliance in patients treated with haemodialysis and renal transplantation. *Turk Psikiyatri Derg* 2006; 17:13-31. .
- [10]. Özçürümez G, Tanrıverdi N, Zileli L. Psychiatric and psychosocial aspects of chronic renal failure. *Turk Psikiyatri Derg* 2003; 14:72-80.
- [11]. Wu AW, Fink NE, Marsh-Manzi JV, Meyer KB, Finkelstein FO, Chapman MM, et al. Changes in quality of life during hemodialysis and peritoneal dialysis treatment: generic and disease specific measures. *J Am Soc Nephrol* 2004; 15:743-753.
- [12]. Guney I et al; The Evaluation of Demographical, Clinical and Laboratory Characteristics and the Factors That Influence Health-Related Quality of Life in Hemodialysis Patients in Konya 2005;14 (1) 26-31