Evaluation of the Awareness of Chronic Kidney Disease Among Patients Receiving Hemodialysis

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Abstract

Objectives: Awareness of chronic kidney disease is important for compliance to treatment before the disease progresses to advanced stages. Low patient awareness causes the disease to advance to end-stage renal failure requiring high cost dialysis and kidney transplantation treatments.

The objective of this study is to measure the awareness of chronic kidney disease in patients receiving hemodialysis and to assess the correlation of patient awareness with quality of life and depression. Additionally, this study assessed the importance of patient monitoring.

Study design: This study is an evaluation and analysis study.

Material & Methods: A total of 213 hemodialysis patients from 7 centers in Giresun were enrolled in this study. Awareness, factors affecting awareness, quality of life (SF-36) and the Beck depression index of chronic kidney disease in patients receiving hemodialysis treatment.

Results: Of patients, 71.4% (n=152) were monitored by nephrology, 43.2% (n=92) were monitored by dieticians and 10.8% (n=23) were receiving psychological support. The awareness points of patients monitored by dieticians is significantly high compared with that of not under the control of dieticians. Also, the awareness points of patients monitored by nephrology is significantly lower compared with the patients not monitored by nephrology. There was no significant difference between awareness points of those who were receiving psychological support compared to those who were not.

Conclusions: Consultations with dieticians may provide positive support to increase the disease awareness of hemodialysis patients. Increasing disease awareness does not create a positive or negative situation in terms of depression and quality of life.

Keywords: Chronic kidney disease, Awareness, Hemodialysis, Quality of Life, Depression

Introduction

Chronic kidney disease (CKD) is a significant public health concern all over the world. Although its progression can be prevented or delayed with early diagnosis, low patient awareness and ineffective communication between patients and providers communication can impede such efforts. Awareness of CKD is important for compliance to treatment before the disease progresses to advanced stages and to improve health outcomes[1]. Unfortunately, awareness of this disease is lower among patients compared to other chronic diseases. According to studies in different parts of the world, the awareness of the disease is below 10 percent[2, 3]. Even among patients with 2-4 clinical symptoms linked to CKD, awareness rates do not exceed 10 percent[4].

In Turkey, awareness rates are even lower. According to the Chronic Renal Disease in Turkey prevalence study (CREDIT) by the Turkish Society of Nephrology, lower patient awareness of CKD in Turkey was detected (<2%)[5]. In 2010, the Renal Health Bus project run by the Turkish Society of Nephrology revealed that the awareness of the disease was 5.7% in 21 provinces of Turkey[6]. Due to low patient awareness, the disease advances to end-stage renal failure (ESRF) requiring high cost dialysis and kidney transplantation treatments. This situation causes a severe threat to patient health and health budgets.

A continuous and rapid increase has recently occurred in the number of patients undergoing renal replacement therapy in Turkey. As of the end of 2013, according to nation-wide health registry data, approximately 66700 patients were currently undergoing renal replacement therapy, with a prevalence and incidence of 870 and 138 per-million population, respectively, for end-stage renal failure[6]. The most frequent treatment modality for end stage renal failure is hemodialysis Other therapeutic modalities in this patient group include renal transplantation (14%) and peritoneal dialysis (7%)[7].

In this study, we aimed to measure the awareness, factors affecting awareness, quality of life and Beck depression index in CKD patients receiving hemodialysis (HD) treatment.

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Methods

A total of 213 HD patients from 7 centers in Giresun province were enrolled in this study. A written informed consent was obtained from each participant, and data were collected with face-to-face interviews. The study protocol was approved by the local ethics committee and the study procedures were carried out in accordance with the principles set forth by the Declaration of Helsinki.

Patients' age, educational level, income level, chronic diseases, habits, previous operations and duration of hemodialysis therapy in years, were obtained during the interview portion of the surveys. Patients were asked to answer the disease awareness questions. In addition they were asked to fill out the "Quality of Life (SF-36)[8] and "Beck Depression Inventory" (BDI)[9] with adaptation, validity and reliability studies completed for Turkish society.

The questions used to measure disease awareness of the patients were prepared by the researchers with screening the literature.

Patients were asked the following question to assess their awareness of CKD:

DISEASE AWARENESS QUESTIONS

1   What is kidney failure?
2   What is dialysis?
3   How many types of dialysis are there?
4   Do you know the names of the types of dialysis?
5   What is the disease that you have requiring you to have dialysis?
6   What are things that you should not eat or drink?
7   Are you monitored by nephrology?
8   Have you applied to a dietician?
9   Are you receiving psychological support?

All answers were classified and given points. As the first 2 questions had subjective answers, 2 necessary answers were determined, with points given as 0 (zero) for not mentioning either, 1 (one) for mentioning one of the answers and 2 (two) for mentioning both answers. Question 5 was asked to determine whether the patient knew the disease that required them to have dialysis and points were given for knowing or not knowing. Question 6 enquired about foods and fluids that should not be eaten with patients expected to answer related to foods containing water, salt, potassium and phosphorus.

In this study for the first 6 questions aiming to assess awareness, total points were compared. The final 3 questions were to assess experts, the patient had consulted with about the disease and each question was compared separately.

Statistical Analysis

Data was analyzed using the Statistical Package for the Social Sciences (SPSS) software program (22.0 for Windows) (SPSS Inc., Chicago, IL, USA). Normality of the variables was analyzed with the Kolmogorov-Smirnov test. Statistical significance between different groups were tested with Independent sample t-test whenever both groups have normal distribution, otherwise Fisher's exact test was used. Mann-Whitney U test was used in comparison of non-normally distributed variables. $p < 0.05$ values considered statistically significant.

Results

The study assessed 213 patients who volunteered to answer questions and fully answered the survey forms. Mean age was 60.73 ± 13.89 years, with female/male ratio of 89/124. Demographic data for the patients are shown in Table 1.

Table 1. Demographic features of the patients

Number of patients	213	-
Age (mean)	60.73	-
Sex (F/M)	89/124	-
Education	(%)	(n)
None	23	49
Primary	50.2	107
Middle school	10.8	23
High school	10.8	23
University	2.3	5
Income	(%)	(n)
0-300 $	36.2	77
300-600 $	48.4	102
600-900 $	6.6	14
900-1400 $	0.9	2
> 1400 $	0.9	2

The question form relating to disease awareness had total points of 11, and the mean score was found as 3.67. Of patients, 46.9% (n=100) answered the question "what is kidney failure?" incorrectly, while 92.5% (n=197) answered the question "what is dialysis?" incorrectly. Of patients, 71.4% (n=152) were monitored by nephrology, 43.2% (n=92) were monitored by dieticians and 10.8% (n=23) were receiving psychological support (Table 2). The points for SF-36, Beck Depression Index and awareness are shown on Table 3.

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Table 2. Disease awareness scores of the patients

What is kidney failure?	0	46.9	100
	1	49.8	106
	2	3.3	7
What is dialysis?	0	92.5	197
	1	5.2	11
	2	2.3	5
How many types of dialysis are there?	0	38.5	82
	1	56.8	121
	2	4.7	10
Do you know the names of the types of dialysis ?	0	57.3	122
	1	8.0	17
	2	34.7	74
What is the disease that you have requiring you to have dialysis?	0	47.4	101
	1	52.6	112
What are things that you should not eat or drink?	0	50.7	108
	1	44.6	95
	2	4.7	10
Are you monitored by nephrology?	YES	71.4	152
	NO	23.0	49
Have you applied to a dietician?	YES	43.2	92
	NO	51.2	109
Are you receiving psychological support?	YES	10.8	23
	NO	83.6	178

Table 3. The points for SF-36, Beck Depression Index and awareness are shown on Table 3.

Physical Functioning	39.014 ± 31.046
Role-Physical Limitation	26.115 ± 23.532
Role Emotional	31.925 ± 22.386
Vitality	27.418 ± 22.864
Mental Health	61.390 ± 17.728
Social Functioning	78.287 ± 29.381
Bodily Pain	70.599 ± 29.948
General Healty Perception	31.362 ± 20.690
Phsical Component Summary Score	41.773 ± 18.542
Mental Component Summary Score	49.755 ± 13.386
Beck Depression Inventory Score	14.200 ± 8.250
Awareness Score	3.671 ± 2.419

The answers given by patients, demographic data, SF-36 form evaluation and Beck Depression Index results were compared with each other. While the awareness points for those who applied to a dietician were significantly higher compared to those who had not applied to a dietician (p<0.001), there was no significant difference between SF-36 points. The awareness points of those monitored by nephrology were significantly lower compared to those not monitored (p<0.001). Additionally the mental component points on SF-36 evaluation for those monitored by nephrology were observed to be significantly higher compared to those who were not monitored by nephrology (p<0.001), with no significant difference observed for the physical component (Table 4).

There was no significant difference between awareness points of those who were receiving psychological support compared to those who were not. Other evaluations found that those who were receiving psychological support had significantly higher social work points (p=0.039) and significantly lower general health perception points (p=0.008) with no significant difference identified between physical and mental components. There was no significant difference observed between all groups in terms of Beck Depression Index points.

Discussion

In our study, we attempted to assess our patients' awareness of CKD, quality of life and depression levels. When the sociodemographic data of our patients were examined, no significant differences were found between SF-36, Beck and awareness points in terms of age. We observed that only education had a significant contribution to physical function

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Table 4. The mean scores of SF-36 according to monitoring by nephrology

			p
Physical Functioning	41.15 ± 3092	36.73 ± 31.57	0.388[a]
Role-Physical Limitation	**29.68** ± 23.23	**16.07** ± 21.35	**<0.001[a]**
Role Emotional	**36.4** ± 20.61	**16.66** ± 21.25	**<0.001[a]**
Vitality	**24.73** ± 21.92	**39.38** ± 22.95	**<0.001[b]**
Mental Health	61.5 ± 18.20	62.28 ± 17.22	0.790[a]
Social Functioning	**80.67** ± 28.80	**69.64** ± 31.15	**<0.023[a]**
Bodily Pain	**73.66** ± 29.70	**63.97** ± 27.38	**<0.042[a]**
General Healthy Perception	**30.49** ± 20.68	**38.06** ± 19.12	**<0.024[a]**
Physical Component Summary Score	43.77 ± 18.18	38.71 ± 17.96	0.398[b]
Mental Component Summary Score	50.83 ± 13.07	46.99 ± 14.3	**<0.02[b]**
Beck Depression Inventory Score	14 ± 7.88	14.18 ± 9.30	0.590[a]
Awareness Score	1.59 ± 1.41	2.3 ± 1.30	**<0.001[b]**
a) Independent Samples t-test			
b) Mann -Whitney U test			

points. We found that only income status had a significant difference on Beck Depression Index points.

The important information for us was related to the awareness levels of patients about their disease, the level of support they were receiving and how much these had benefited the patients. As a result, we attempted to determine how much knowledge they had about dialysis and CKD through questions asked to the patients, whether they received psychological and dietician support and whether they were monitored by nephrology, apart from the dialysis clinician. Then we assessed the correlations between these factors with SF-36 and Beck Depression Index points for the patients.

There is no standard method among the studies investigating CKD awareness of the patients. This has caused different results in the literature. Therefore, making an exact comparison is difficult.

In a study on awareness of diabetic disease, it was observed that 74% of patients gave incorrect answers to the question "what is diabetes?" The same study found that 53% of patients gave wrong answers to the question "what should starving and satiated blood sugar levels be?"[10]. Though our study does not relate to the same disease, a comparison was made as both studies examined awareness of diseases with chronic progression requiring continuous treatment. In our study 46.9% of patients answered the question "what is kidney failure?" incorrectly, while 92.5% answered the question "what is dialysis?" incorrectly.

Before beginning our study, we considered that patients with high awareness of the disease would expend more effort and would receive greater levels of support from dieticians, psychologists and nephrology departments. However, when our results are assessed, we found that only patients receiving dietician support had high disease awareness. Contrary to this, patients receiving nephrology support had lower awareness and there was no difference in the awareness lev-

els of the patients receiving psychological support and those who were not. We thought that consulting with a dietician may provide positive support to increase the disease awareness of patients receiving hemodialysis treatment. It appears that nephrology monitoring was not a significant factor in awareness; however we thought the high percentage of patients consulting with nephrology (71.4%) may be due to the patients who have to consult due to the natural progression of the disease. In our patient group the number of patients receiving psychological support was very low (10.8%) and we did not observe any positive or negative contribution of disease awareness about this topic. We did not observe any significant correlation between Beck Depression points and SF-36 points with disease awareness.

In a study by Tuot et al. related to dialysis groups, CKD awareness was assessed in 1852 adults with an estimated GFR of 60 ml/min per 1.73 m2 using 1999 to 2008 National Health and Nutrition Examination Survey data[4]. CKD awareness was a "yes" answer to "Have you ever been told you have weak or failing kidneys?" Participants were grouped by distribution of the following abnormal markers of CKD: hyperkalemia, acidosis, hyperphosphatemia, elevated blood urea nitrogen, anemia, albuminuria, and uncontrolled hypertension. The results of the study found that 90% of individuals with two to four markers of CKD and 84% of individuals with 5 markers of CKD were unaware of their disease[11]. A study by Alsadhan et al. assessed the awareness of dialysis patients about diet and asked patients whether sodium, potassium, fluid intake, calcium/phosphorus and lipids were dangerous. They found awareness points between 86.5% (lipids) and 71.3% (fluid intake). In the study they showed a positive effect of dietician visits on awareness points[12].

In a study by Oluyombo et al. from Nigeria, awareness and knowledge about chronic kidney disease was investigated in the general population. Only 33.7% of the patients had heard of CKD, 10.6% could mention at least one function of

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the kidneys, and majority of the patients (67.0%) could not know the correct localization of the kidneys in the body[13]. In another study by Shirazian et al. with 2500 patients with CKD, awareness of CKD was found as 6.4%. Awareness of CKD was found to be significantly associated with depressive symptoms.

In our study, we did not observe a significant difference in the Beck Depression points of the patients receiving dietician support or nephrology follow-up compared to those who were not. Interestingly, the Beck Depression Index points were significantly higher for the patients receiving psychological support compared to those who were not. When this situation is assessed together with the lack of significant difference in disease awareness between the patients receiving psychological support and those not receiving it, it leads to the consideration that consultation with psychologists was linked to the necessity rather than awareness.

We did not show any effect of receiving dietician support on SF-36 points. We observed that the patients receiving psychological support had significantly higher social work points and significantly lower general health perception points. The physical role, emotional role, social work, pain and mental component points of the patients receiving nephrology follow-up were high, while general health perception and energy points were significantly lower.

As our study encompassed a whole province, we think our results are valuable. However, there is a need for broader scale studies as there are insufficient studies on disease awareness among hemodialysis patients in the literature.

In conclusion; we found that chronic kidney disease awareness of the patients receiving hemodialysis was found low. The awareness was higher among the patients who were receiving support from a dietitian. Consultations with dieticians may provide positive support to increase the disease awareness of hemodialysis patients.

Correct perceptions of disease and accessing accurate information about the disease have a significant effect on correct management of disease by individuals.

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