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Factors Related to Anxiety in Predialysis Patients with Chronic Kidney Disease

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Abstract

Anxiety is common emotions in predialysis patients with chronic kidney disease (CKD). The purpose of this study was to measure the anxiety in predialysis patients and to identify clinical variables that are associated with anxiety. The subjects for this study were 102 patients who visited the nephrology outpatient department of a tertiary hospital in Seoul between October 12th and October 26th, 2013 and consented to participate in the study. The collected data were analyzed by the SPSS WIN 12.0 program. The mean score of anxiety was 12.2 which means their experience of high level anxiety and moderate and severe symptoms of anxiety were identified in 59.8% of the patients. There were significantly negative correlations between anxiety and residual renal function (r=-.221, p=*.026). There was a significant difference in the anxiety of the subjects at each stage (F=4.54,* p=*.013). The Scheffe post hoc test confirmed that patients at Stage 5 had highest levels of anxiety. There were significantly positive correlations between anxiety and uremic symptoms (r=.481,* p<*.001). There were significantly negative correlations between anxiety and age (r=-.201,* p=*.045) and comorbidities (r=-.218,* p=*.028). Also, Age, GFRs, comorbidities and uremic symptoms predicted value accounted for 57.2% of the variance on anxiety (F=11.77,* p<*.001). Hence, health care providers should be concerned about helping to slow the progression of renal failure and considered related variables when planning an approach towards managing the anxiety in predialysis patients with CKD.*

Keywords: *predialysis, anxiety, glomerular filtration rates*

1. Introduction

Chronic kidney disease (CKD) is a life-threatening chronic illness, in which the kidneys cease to function. It is considered a public health problem worldwide. It is defined by kidney tissue injury and /or a decrease in kidney function over a period of three or more months. When the glomerular filtration rate (GFR) is below 15ml/min/1.73m^2, the patient is in the terminal stage or dialysis, requiring renal replacement therapy, dialysis or transplant as alternative treatments [1]. Although advances in technological and pharmacological interventions are improving survival rates in patients with CKD, patients still face many physical and emotional challenges as a result of their diagnosis, comorbid conditions, and treatment related side effects [2, 3]. The patient attending a pre-dialysis clinic is in a state of transition, characterized by uncertainties, fears and anticipation of loss. The chief problems are fear of death, fear of the unknown, doubts about the future, relationship problems due to effects of illness for examples irritability, impaired concentration, fatigue, loss of libido, guilt, fear of dependence, role reversal [4, 5]. The relationship between quality of life is inversely proportional to the prevalence of anxiety [6]. This condition may represent an increase in morbidity and mortality

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in dialysis patients, as well as compromising treatment compliance and downgrading their immune and nutritional status, both because of symptoms of anxiety as per associated symptoms – such as loss of concentration, loss of motivation, sleep disorders, fatigue, depressed mood and difficulty understanding information [7]. The objectives of this study were to measure the anxiety in predialysis patients and to identify clinical variables that are associated with anxiety.

2. Methods

2.1. Subjects and Data Collection

The subjects for this study were 102 patients who visited the nephrology outpatient department of a tertiary hospital in Seoul between October 12th and October 26th, 2013 and consented to participate in the study. Those who agreed to answer the questionnaire were given it. Data were collected using face to face interview with a structured questionnaire. It took 10 minutes to complete the questionnaire. Regarding Glomerular Filtration Rates, Electronic Medical Record (EMR) was referred.

2.2. Instruments

2.2.1. Anxiety

The Hospital Anxiety and Depression Scale (HADS) was developed to identify potential new cases of anxiety and depression in adults. HADS differs from other scales because it contains items that address symptoms of anxiety associated with physical illness (such as weight loss, insomnia, fatigue, headache and dizziness) to prevent interference from somatic disorders in scale scoring [8]. It contains 7 items related to emotional and cognitive aspects of anxiety. The 'anxiety' level was assessed by the questions: "Do you feel tense and wound up? Do you worry a lot? Do you have panic attacks? Do you feel something awful is about to happen?" The questionnaire responses were analyzed in the light of the results of this estimation of the severity of anxiety. This enabled a reduction of the number of items in the questionnaire to just seven reflecting anxiety. Each item is graded 0 to 3, indicating symptom intensity or frequency. The total score ranges from 0-21 for each subscale. The higher the score, the more severe the symptoms; 0-7 indicates the absence of significant symptoms; mild symptoms between 8-10; 11-15 and 16-21 for moderate and severe symptoms, respectively.

2.2.2. Renal Function

The measurement of renal function was the estimated glomerular filtration rates (GFRs). For categorical analysis the subjects were separated, based on GFRs into five groups corresponding to the five stages of the K-DOQI classification of CKD. All individuals with a GFR <60 ml/min/1.73 m^2 for 3 months are classified as having chronic kidney disease, irrespective of the presence or absence of kidney damage. Stage 3 is moderate reduction in GFR (30–59 ml/min/1.73 m^2), Stage 4 is severe reduction in GFR (15–29 ml/min/1.73 m^2) and Stage 5 is established kidney failure (GFR <15 ml/min/1.73 m^2), permanent renal replacement therapy, or end-stage renal disease [7].

2.2.3. Other Variables

Gender, age, educational level and uremic symptoms were determined from interview and EMR review.

2.3. Data Analysis

Collected data were statistically analyzed with the SPSS WIN (ver. 12.0) program. Analysis included percentage, average, standard deviation, Pearson's correlation coefficient, *t*-test, ANOVA and multiple regressions.

2.4. Ethical Consideration

Standard ethical and legal points were followed regarding the use of reporting subjects in research; salient, relative points were explained to all subjects. These guidelines included: participants right to withdraw from the project, anonymity, limitations on the use of resulting data, use for research and or academic purposes only, and the possible destruction of sensitive materials.

3. Results

3.1. General Characteristics of the Patients

The general characteristics are presented in Table 1. Fifty-two point nine percent of patients were male, with a mean age of 61.6 years. The mean number of having uremic symptoms was 3.0.

Table 1. General Characteristics of Patient N=102

Variable		N(%) or Mean±SD
Gender	Male	54(52.9)
	Female	48(47.1)
Age		61.6±10.3
Years of Education		11.2±4.4
Comorbidities		2.0±1.1
Uremic symptoms (number)		3.0±1.9

3.2. Anxiety of the Patients

The mean score of anxiety was 12.2 which mean their experience of high level anxiety <Table 2>. Moderate and severe symptoms of Anxiety were identified in 59.8% of the patients.

Table 2. Anxiety of the Patients N=102

Variable	N(%) or Mean±SD
Anxiety	12.2±3.9
No	7(6.9)
Mild	33(32.4)
Moderate	44(43.1)
Severe	17(16.7)
I feel tense or wound up	1.7±0.8
I get a sort of frightened feeling like something awful is about to happen	1.9±1.0
Worrying thoughts go through my mind	2.1±0.8
I can sit at ease and feel relaxed	2.0±0.8
I get a sort of frightened feeling like butterflies in the stomach	1.6±0.7
I feel restless as if I have to be on the move	1.4±0.7
I get sudden feeling of panic	1.5±0.7

3.3. Correlation between Anxiety and Residual Renal Function

There were significantly negative correlations between anxiety and residual renal function (r=-.221, *p*=.026) <Table 3>. There were significantly negative correlations between GFRs and I feel tense or wound up, I get a sort of frightened feeling like something awful is about to happen and I get a sort of frightened feeling like butterflies in the stomach.

Table 3. Correlation Between Quality of Sleep and Residual Renal Function

	Glomerular Filtration rates	*p*
Anxiety	-.221	.026*
I feel tense or wound up	-.184	.044*
I get a sort of frightened feeling like something awful is about to happen	-.194	.031*
Worrying thoughts go through my mind	-.076	.446
I can sit at ease and feel relaxed	-.142	.154
I get a sort of frightened feeling like butterflies in the stomach	-.211	.034*
I feel restless as if I have to be on the move	-.167	.094
I get sudden feeling of panic	-.133	.182

*p<.05

3.4. Anxiety of the Patients by Stages

There was a significant difference in the anxiety of the subjects at each stage (F=4.54, p=.013) <Table 4>. The Scheffe post hoc test confirmed that patients at Stage 5 had highest levels of anxiety. The results showed that patients at higher stages had higher anxiety.

Table 4. Anxiety of the Patients by Stages

Variable	Stage 3 (N=24) N(%) or M±SD	Stage 4 (N=32) N(%) or M±SD	Stage 5 (N=46) N(%) or M±SD	F(*p*)
Anxiety	11.1±1.0[a]	11.4±1.0[b]	13.5±2.0[c]	4.54(.013)
I feel tense or wound up	1.6±0.7	1.6±0.7	1.9±0.8	2.93(.058)
I get a sort of frightened feeling like something awful is about to happen	1.5±0.9 [a]	1.6±1.0 [b]	2.1±1.0 [c]	3.36(.039)*
Worrying thoughts go through my mind	2.0±0.8	2.1±0.9	2.2±0.9	.58(.562)
I can sit at ease and feel relaxed	1.8±0.7	1.9±0.8	2.1±0.8	1.27(.285)
I get a sort of frightened feeling like butterflies in the stomach	1.5±0.7	1.5±0.7	1.8±0.8	2.83(.063)
I feel restless as if I have to be on the move	1.2±0.6 [a]	1.4±0.6 [b]	1.6±0.6 [c]	3.23(.044)*
I get sudden feeling of panic	1.3±0.6 [a]	1.5±0.6 [b]	1.7±0.7 [c]	3.45(.036)*

*p<.05
Post-hoc comparison=Scheffe, a<b<c

3.5. Correlation between Anxiety and other Variables

There were significantly positive correlations between anxiety and uremic symptoms (r=.481, p<.001) <Table 5>. There were significantly negative correlations between anxiety and age (r=-.201, p=.045) and comorbidities (r=-.218, p=.028).

Table 5. Correlation between Anxiety and other Variables

	Anxiety	*p*
Gender	0.74	.457
Age	-.201	.045*
Years of Education	-.049	.624
Comorbidities	-.218	.028*
Uremic symptoms (Number)	.481	<.001*

*p<.05

3.6. Factors of Affecting the Anxiety in Predialysis Patients

Age (p=.002), GFRs (p=.017), comorbidities (p=.013), and uremic symptoms (p<.001) predicted value accounted for 57.2% of the variance on anxiety (F=11.77, p<.001) < Table 6>.

Table 6. Factors of Affecting the Anxiety in Patients N=102

Factor variables	Standardized Beta	t	*p*	Adj R^2
Constant				.572
Age	-.211	-2.29	.002*	
GFRs†	.218	-2.37	.017*	
Comorbidities	-.226	-2.52	.013	
Uremic symptoms	.477	5.55	.<.001*	

†, Glomerular Filtration Rates

*p<.05

4. Discussion

This study was to measure the anxiety in predialysis patients with CKD and to identify clinical variables that are associated with anxiety. We found that in predialysis patients with CKD had high level of anxiety, also, clinical variables such as age, comorbidities, residual renal function and uremic symptoms were identified to have significant relationship. The mean score of anxiety was 12.2 which mean their experience of high level anxiety. Moderate and severe symptoms of Anxiety were identified in 59.8% of the patients. This finding was similar to that of several other studies disorders [5] [6] [10]. There are several possible explanations for this finding. The lifestyle changes that are made by the patient with kidney disease are numerous. These include frequent healthcare visits and/or hospitalization, the need for special equipment, dietary changes that can be drastic, numerous treatment decisions, and numerous and multiple daily medication dosing. Because of the number of new situations, lack of knowledge, new treatments, and numerous tests, patients often become anxious, and this anxiety over time can lead to depression. Changes in body image caused by edema, skin change, and access devices lead to further anxiety. Large weight gains in fluids and other noncompliance issues may be a sign of anxiety, depression of suicidal tendencies. Patients at this point view support networks and spiritual issues as important indicators for maintaining a quality of life [11]. Regarding study results, there was a significant difference in the anxiety of the subjects at each stage. Stage 3 is when patients first become aware of their symptoms and when diagnosis, initial treatment and follow up begin. The few studies in this early stage of the disease indicate that their quality of life is lower than that of the general population [12]. Stage 4 occurs after the initial diagnosis and treatment, once the patient and the family have recognized the long-term nature of the disease and the difficulties of day to day life with a chronic illness. Stage 5, patients come to the realization that renal replacement is a way of life and tend to regress and become anxiety and depressed. Among the factors that were examined in relation to anxiety the most important were uremic symptoms, residual renal function and the number of co-morbid conditions from which the patient suffered. A personal characteristic- age was also related to the anxiety. Also, they were significant in the multi-variate analyses. Several studies have confirmed the importance of predialytic intervention and monitoring [13] [14] [15]. CKD is usually caused by other chronic or underlying disease, such as diabetes, hypertension and cancer and various kidney diseases all of which can affect their anxiety. The number of co-morbid conditions, i.e., those which occur alongside CKD such as heart and vascular diseases, their various sequelea and side effects also have been found to have a negative effect on CKD patients' anxiety and quality of life [16]. CKD is commonly accompanied by numerous uremic symptoms. In the predialytic stage, they include fatigue, nausea, pruritis, shortness of breath, weakness and dizziness, lack of appetite and irritation. These symptoms are related to low quality of life, both physical and mental, and have a greater effect on the predialytic patient than socio-demographic or clinical variables [17] [18]. Regarding study results, there was a significant difference in the anxiety of the subjects at each stage. The patients at higher stages had higher levels of anxiety. As patients have different levels of anxiety on their stages, it is important to develop and use a systematic education program that reflects the levels of patients at each stage in order to help predialysis patients with CKD and improve their quality of life. As a conclusion of these findings, health care providers should be concerned about helping to slow the progression of renal failure and considered related variables when planning an approach towards managing the anxiety in predialysis patients with CKD.

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