ORIGINAL RESEARCH

Impact of chronic kidney disease on quality of life: A hospital based study

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Abstract
Background: Chronic kidney disease has become a global burden on the health service system and has been recognized as a major threat to humans, particularly in reducing quality of life (QOL) in the later stages of the disease. The study was conducted to assess impact of chronic kidney disease on quality of life of patients. **Material & Methods:**The sample size was 100 patients. The participants were interviewed to complete a structured questionnaire, which included demographic and clinical information as well as a KDQOL-SF scale with 36 items. Statistical Package for Social Sciences (SPSS) Version 21.0 was used to analyze the study results. **Results:**The Physical function mean was 57.65 ± 13.66; physical role 57.63 ± 12.45; body pain 52.85 ± 12.40; and general health 560.24 ± 13.45. The emotional wellbeing mean score was 59.48 ± 11.95; emotional role 60.60 ± 12.62; social function 57.75 ± 12.25; and energy/fatigue 557.39 ± 13.10. These results were highly significant ($p < 0.0001$). The summary score of the KDQOL-SF scale shows that; the PCS mean score was 58.64 ± 2.89 and the mean MCS score 58.45 ± 1.29. **Conclusion:**The study concluded that the mean score of the QoL for patients with CKD was lower in the hospitalized patients. Therefore, necessary measures should be taken to improve the QoL of patients.
Keywords: Chronic Kidney Disease, Quality Of Life, hospitalized patients.

Introduction

Chronic kidney disease (CKD) is a diverse condition where kidney function is reduced at various levels, starting from a state of risk or damage and progressing through mild, moderate, and severe stages of chronic kidney failure.[1]It is defined as abnormal kidney structure or function persisting greater than 3 months.[2] This can be determined either by evidence of kidney damage (typically detected by presence of persistent albuminuria) or by decreased glomerular filtration rate (GFR).[3,4] In 2010, approximately 2.62 million people required treatments such as dialysis due to CKD; the need for dialysis is projected to double by 2030[5,6]. As CKD is a chronic disease, it affects the health-related quality of life (HRQoL) of patients.[7] QOL is satisfaction or happiness in life according to the context and experience of the person, which consists of physical, mental, social, and general health.[8] The Kidney Disease Quality of Life Working Group, USA stated that QOL covers holistic well-being, including physical, mental, emotional, social, and mental health.[9] CKD patients can spend many hours of their lives in hospitals. Such constraints affect the living conditions of these patients and ultimately influence their quality of life.[10] CKD leads to many health consequences, including an increased risk of cardiovascular morbidity, prolonged hospitalization, a shortened lifespan, long-term care, or premature mortality and has a severe impact on the QoL of patients.[11] The study wasconducted to assess impact of chronic kidney disease on quality of life of patients.

Material & Methods

A hospital based cross-sectional study was conducted to assess impact of chronic kidney disease on quality of life of patients over a period of 6 months. Before the commencement of the study ethical clearance was taken from the Ethical committee of the institute and informed consent was taken from the patients after explaining them the study. The sample size was 100 patients. The inclusion criteria for this study were: patients with CKD at any stage from 1 to 5; who had been diagnosed with CKD for a minimum of one year or more; who were aged 20 or above, including both

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male and female genders; who visited a kidney OPD or were admitted to the renal wards for longer than a month; and who were on a treatment such as HD, an immune suppressant therapy, or any other treatment. Patients who voluntarily provided informed consent and who were available during the data collection were included in the study.Unconscious or semi-conscious patients were excluded from this study.The participants were interviewed to complete a structured questionnaire, which included demographic and clinical information as well as a KDQOL-SF scale with 36 items. The tool used was developed in English and the time ranged from approximately 20 to 30 min to collect the data. The first part of the structured tool was the collection of the demographic information of the patients with CKD, including age, gender, and family history of CKD. The second part of the structured tool was the clinical information of the patients with CKD, including co-morbid conditions, as well as the stage of CKD, and type of treatment for the kidney disease. The KDQOL-SF tool[10,12]was used, which consists of 36 items. This instrument is divided into eight different aspects: physical functioning; the role of physical function; body pain; general health; emotional wellbeing; the role of emotional function; social function; and energy or fatigue. The results of each scale vary from 0 to 100 (worst to best possible status). The physical and mental aspects of the eight scales are combined into a physical component summary (PCS) and a mental component summary (MCS). Statistical Package for Social Sciences (SPSS) Version 21.0 (Armonk, New York, NY, USA: International Business Machines (IBM) Corporation) was used to analyze the study results. All the tests of significance were two-tailed with a p-value < 0.05 indicating a statistically significant difference and <0.001 showing a highly significant difference.

Results

Table 1: Demographic information of the patients.

Variables		N(%)	p-value
Gender	Male	62(62%)	0.41
	Female	38(38%)	
Age groups (years)	20-40	15(15%)	0.4
	41-60	41(41%)	
	Above 60 years	44(44%)	
Family History of CKD	Yes	15(15%)	0.13
	No	85(85%)	

Out of 100 patients, 62% were males and 38% were females. Maximum patients were of age group above 60years (44%) followed by age group 41-60 years (41%). A total of 15% patients had a family history of CKD. There were no significant differences in the demographic information of the patients.

Table 2: Clinical information of the patients.

Variables		N(%)	p-value
Co-morbidities	DM	28(28%)	0.33
	HT	35(35%)	
	Heart disease	15(15%)	
	Others	22(22%)	
Stage of CKD	1	18(18%)	0.001
	2	26(26%)	
	3	27(27%)	
	4	17(17%)	
	5	12(12%)	
Treatment of CKD	HD	32(32%)	0.001
	Immunosuppressants	40(40%)	
	Others	28(28%)	

Majority of patients had HT(35%) as a co-morbidity followed by DM(28%). Majority (27%) were at stage 3; 26% were at stage 2, and 18% were at stage 1. Most of the patients with CKD (40%) received immunosuppressants as a treatment for CKD and 32% received HD as a treatment.

Table 3: KDQOL-SF scores of the patients

Dimensions	No. of items	Mean±SD	p-value
Physical function	10	57.65 ± 13.66	0.0001
Role physical	4	57.63 ± 12.45	0.0001
Body pain	2	52.85 ± 12.40	0.0001

General health	5	60.24 ± 13.45	0.0001
Emotional wellbeing	5	59.48± 11.95	0.0001
Role emotional	3	60.60 ± 12.62	0.0001
Social function	2	57.75 ± 12.25	0.0001
Energy/fatigue	4	57.39 ± 13.10	0.0001
PCS		58.64 ± 2.89	0.0001
MCS		58.45 ± 1.29	0.0001

The mean value and SD score of the KDQOL was shown in Table 3. The Physical function mean was 57.65 ± 13.66; physical role 57.63 ± 12.45; body pain 52.85 ± 12.40; and general health 560.24 ± 13.45. The emotional wellbeing mean score was 59.48 ± 11.95; emotional role 60.60 ± 12.62; social function 57.75 ± 12.25; and energy/fatigue 557.39 ± 13.10. These results were highly significant ($p < 0.0001$). The summary score of the KDQOL-SF scale shows that; the PCS mean score was 58.64 ± 2.89 and the mean MCS score 58.45 ± 1.29.

Discussion

Health-related quality of life is a constantly increasingly relevant measure in assessing the effectiveness of chronic illness therapy, particularly in patients with advanced CKD. Patients' subjective assessments of the disease play a critical role in determining medical decisions that take into account their physical, social, and emotional requirements. Various factors contribute to this decline in HRQoL, including inadequate nutrition, anemia, cognitive impairment, depression, sleep disorders, apathy, reduced physical and sexual functioning, and co-morbidities such as diabetes, hypertension, and cardiovascular diseases. Until now, HRQoL has only been considered as a consequence of an individual's illness. However, HRQoL is gaining significance as a patient-centered measure and is acknowledged as a health system indicator. Despite this knowledge, little is currently understood about how kidney disease specifically impacts HRQoL and whether HRQoL predictors can be targeted for potential interventions.[13]Out of 100 patients, 62% were males and 38% were females. Maximum patients were of age group above 60years (44%) followed by age group 41-60 years (41%). A total of 15% patients had a family history of CKD. There were no significant differences in the demographic information of the patients. Majority of patients had HT(35%) as a co-morbidity followed by DM(28%). Majority (27%) were at stage 3; 26% were at stage 2, and 18% were at stage 1. Most of the patients with CKD (40%) received immunosuppressants as a treatment for CKD and 32% received HD as a treatment. The mean value and SD score of the KDQOL was shown in Table 3. The Physical function mean was 57.65 ± 13.66; physical role 57.63 ± 12.45; body pain 52.85 ± 12.40; and general health 560.24 ± 13.45. The emotional wellbeing mean score was 59.48 ± 11.95; emotional role 60.60 ± 12.62; social function 57.75 ± 12.25; and energy/fatigue 557.39 ± 13.10. These results were

highly significant ($p < 0.0001$). The summary score of the KDQOL-SF scale shows that; the PCS mean score was 58.64 ± 2.89 and the mean MCS score 58.45 ± 1.29.Kefale B, et al found that Quality of life was decreased in all stages of CKD. A reduction in physical functioning (p = 0.03), bodily pain (p = 0.004), vitality (p = 0.019) and social functioning (p = 0.002) was observed progressively across stages of CKD. High income status and greater than 11g/dl hemoglobin level were found to be predictors of all high score SF-36 domains. High family income (β 15.33; 95%CI: 11.33–19.33, p<0.001), higher educational status (β 7.9; 95%CI: 4.10–11.66, p<0.001), and hemoglobin ≥11g/dl (β 8.36; 95%CI: 6.31–10.41, p<0.001) were predictors of better QoL in the physical component summary, whereas absence of CKD complications (β 2.75; 95%CI: 0.56–4.94, p = 0.014), high family income (β 10.10; 95%CI: 5.10–15.10, p<0.001) and hemoglobin ≥11g/dl (β 4.54, 95%CI: 2.01–7.08, p = 0.001) were predictors of better QoL in the mental component summary.[14]Jalal SM, et al found that The hospitalized patients had a poorer QoL than the OPD patients. The physical component summary (PCS) and mental component summary (MCS) mean scores were 52.82 ± 2.32 and 52.57 ± 2.93 in IPD patients, respectively, and 63.46 ± 3.65 and 66.39 ± 0.91 in OPD patients, respectively, which was significant ($p < 0.0001$). The QoL of patients decreased in the end stages of CKD. A significant association was observed between gender, occupation, smoking, and the stages of CKD with the QoL of the hospitalized patients. Measures must be taken to improve the QoL of these patients at all levels.[15]Sharma S et al found that Among a total of 105 participants, the mean (±standard deviation) age was found to be 54.53 ± 13.47 years; 48 were male patients, and 57 were female patients. Diabetes Mellitus (61.9%), hypertension (56.2%), chronic glomerulonephritis (7.6%), chronic pyelonephritis (6.7%), and polycystic kidney disease (5.7%) were identified to be the most frequent disorders associated with CKD. The current study also demonstrated that the HRQoL score domains such as symptom problem list, the effect of kidney disease, and the burden of kidney disease decline significantly and progressively as the patient advances into higher stages of CKD ($p = 0.005$). A similar pattern was observed in work status, sleep, and general health ($p < 0.005$). Additionally, a statistically significant difference was noted for cognitive function, quality of social interaction, overall health, dialysis staff encouragement, patient satisfaction, social support,

physical functioning, role of physical health, pain, emotional well-being, role of emotional health, social functioning, and energy fatigue ($p < 0.005$). The mean difference for PCS and MCS based on CKD stages was found to be statistically significant ($p < 0.005$). The PCS and MCS showed a positive correlation with GFR (r = 0.521), and Hb (r = 0.378), GFR (r = 0.836), and Hb (r = 0.488), respectively.[13]

Conclusion

The study concluded that the mean score of the QoL for patients with CKD was lower in the hospitalized patients. Therefore, necessary measures should be taken to improve the QoL of patients.

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