Evaluation of Impact of Counseling on Quality of Life of Chronic Kidney Disease and Hemodialysis Patients

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A B S T R A C T   Submitted: 06/03/2013   Accepted: 16/09/2013

Chronic kidney disease (CKD) is a public health problem. Patients having CKD/ end stage renal disease (ESRD) undergoing haemodialysis deal not only with stressful chronic illness but complex and demanding treatment regimen, affecting quality of life of both patients and their families. The current study was carried out to identify the risk factors causing CKD and to assess the impact of counseling on the quality of life of CKD and haemodialysis patients. A total of 52 patients were enrolled in the study. Patients were counseled and educated about their disease, diet, drugs and life style modifications on each follow up i.e. at one month and third month. A validated QOL questionnaire (α=0.95) was administered along with specially designed and pre validated patient information leaflets. Hypertension was found to be the most common cause of CKD in 25 (48.1%) patients, followed by diabetes in 4 (7.6%), hypertension along with diabetes in 17 (32.7%), glomerulonephritis in 3(5.8%) and immunological causes in 3(5.8%) patients. Statistically significant improvement was noted in social functioning, emotional, mental and self evaluation parameters (p=0.0175, p=0.0143, p<0.0001, p<0.0001 respectively) indicating the impact of counseling. From the above results it can be concluded that the clinical pharmacist provided counseling can help in improving the quality of life of CKD and haemodialysis patients.

Keywords: Education, Hemodialysis, Impact of Counseling, Kidney failure

INTRODUCTION

The National Kidney Foundation (NKF) defines chronic kidney disease as kidney damage or a glomerular filtration rate (GFR) of less than 60 ml per minute per 1.73 m^2 (body surface area) for three months or more. This GFR rate corresponds with a serum creatinine concentration higher than 1.5 mg per dl (132.6 µmol per L) in men and higher than 1.3 mg per dl (114.9 µmol per L) in women.[1] Chronic kidney disease can also be defined by the presence of urinary albumin in an excretion rate higher than 300 mg per 24 hours or in a ratio of more than 200 mg of albumin to 1 g of creatinine.

Chronic kidney disease (CKD) refers to a progressive and irreversible loss of renal function. CKD is a pathophysiologic process with multiple etiologies, resulting in the inexorable attrition of nephron number and function, and frequently leading to end stage renal disease (ESRD).

CRF and ESRD are the most debilitating condition in patients with kidney disease. It has been suggested that late diagnosis and lack of predialysis care are associated with poor quality of life (QOL), and increase in morbidity and mortality during dialysis treatment.

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The NKF Kidney Disease Outcome Quality Initiative (K/DOQI 2002) stratifies chronic kidney disease into five stages based on the GFR and metabolic consequences. (Table 1)

When there is no cure for a chronic illness an essential healthcare goal must be to maximize quality of life. W.H.O defines Quality of life (QOL) as "the individual's perception of their life status concerning the context of culture and value system in which they live and their goals, expectations, standards, and concerns". Generally, it refers to the measure of a patient's functioning, well-being, and general health perception in each of three domains: physical, psychological, and social. Along with survival and other types of clinical outcomes, patient QOL is an important indicator of the effectiveness of the medical care they receive.[2]

Patients with advanced renal disease are expected to understand and follow complex dietary, medication, and physical care regimens. Data indicate that intense education effort in ESRD is associated with increased patient autonomy, improved quality of life and increased compliance with therapies. Patient referral to a renal care specialty team may help ensure that the patient gains an adequate understanding of kidney disease and participates in decision regarding options for renal replacement modality.[3]

ESRD patients are medically complex, require multiple medications for treatments of their various co morbidities, thus these patients are at risk of drug-related problems

Table 1: Classification of Chronic Kidney Disease		
Classification	Damage	GFR (ml per minute per 1.73 m^2)
Increased risk of kidney disease	Risk factors for CKD(diabetes, HTN, family history of CKD)	> 90
Stage 1	Kidney damage (early) with normal or elevated GFR	> 90
Stage 2	Kidney damage with mildly decreased GFR(early renal insufficiency)	60 to 89
Stage 3	Moderately decreased GFR(moderate kidney failure)	30 to 59
Stage 4	Severely decreased GFR(pre end stage kidney disease)	15 to 29
Stage 5	Kidney failure (end-stage kidney disease [uremia]	)< 15 (or dialysis)

(DRPs) that may lead to increased morbidity, mortality, and cost to the healthcare system. Review of the literature demonstrates that pharmaceutical care provided by pharmacists improves ESRD patient care and their health related quality of life. Pharmacist review of ESRD patients' medication profiles, medical records and counseling has shown to be beneficial in identifying and resolving DRPs.[4]

Educational programs generally emphasize patient comprehension of the most common complications of kidney disease, measures to slow progression of renal disease, dietary management, medication management and choice of RRT modality.

Education initiatives such as group education programs, counseling sessions regarding compliance to medications, dialysis, fluid restriction, dietary modifications and life style changes can help improve the quality of life.[5]

MATERIALS AND METHODS

STUDY LOCATION

This study was carried out at a dialysis center, after obtaining the ethical clearance from Institutional Ethical Review board of the hospital. Informed consent was taken from the patients before enrolling them in the study.

STUDY POPULATION

All male and female in-patients and out-patients above 18 years of age diagnosed with chronic kidney disease and those undergoing dialysis were included where as acute renal failure patients and Kidney transplant patients were excluded from the study.

STUDY PROCEDURE:

Patient enrollment

A total of 52 chronic kidney disease patients of either sex who satisfied study criteria were enrolled in the study after the nature of the study was explained to them and their written informed consent were obtained.

Collection of data

At baseline, patient details were collected and recorded in the patient data collection form and by using questionnaire which has two sections. The first section consists of patient demographic details, clinical data such as diagnosis, clinical condition and therapeutic data such as name of the drug, frequency, duration of therapy and laboratory investigational reports.

The second section consisted of the self designed validated questionnaire comprising of 30-questions related to the patients' quality of life (QOL). The questionnaire was validated using acceptability score, answers were scored in yes and no form. Positive answers scored 3 points, scores attained ranged from 14 to 18 with a mean of 16.5, which is 94% of the maximum score attainable, indicating that the material was highly acceptable.

Five were related to physical functioning, three were regarding bodily pain, four general health, four vitality, four social functioning, four emotional, four mental and two were self evaluation based. Before using the questionnaire it was pilot tested in a group of patients for internal consistency reliability (Cronbach's $\alpha = 0.95$)[6] and found to be acceptable. .

Patients were counseled and educated verbally and by providing patient information leaflets. The information given to the patients included information about their disease, diet, drugs, adverse reaction and their management, life style modifications etc on each follow up i.e. at one month and third month after the study entry and the QOL questionnaire was administered by the clinical pharmacist.

Counseling and Quality of Life assessment

I. Pre intervention studies

- At the beginning of the study patient's quality of life and knowledge about disease, treatment, diet, and life style modifications was assessed by carrying out a baseline study by administering the questionnaire.

II. Intervention studies

- Patients were educated by clinical pharmacist about chronic renal failure, need for adherence, diet medications and importance of life style modifications through one-to-one counseling sessions.

III. Post-intervention studies

- Post intervention data was compared with pre intervention data (0, 1, 3 months) to assess the impact of counseling and to evaluate for any change in patient's perception about their disease, treatment, medications and QOL.

RESULTS & DISCUSSION

Physical and emotional symptoms are among the principal manifestation of chronic illness and play a central role in patients experience with life threatening disease. Studies of cancer and HIV populations have shown that symptom burden is substantial and has strong inverse relationship with health related quality of life. A similar relationship is known to exist in the chronic kidney disease population.[7]

Patients detected with end stage renal disease / chronic kidney disease and those recommended for maintenance haemodialysis deal not only with chronic illness but also complex medical regimen and dietary restrictions thus drastically affecting their quality of life.

A total of 52 patients were enrolled based on the inclusion criteria. The sample consisted of mean age of 49.40±10.63 years which was found to be similar to earlier reported studies.[8]

Details of age, gender, reasons for dialysis etc are represented in table no 02. Majority of the patients (36.5%) had only primary education, 26.9% had secondary education (21.2%) were illiterate, and (15.4%) had completed graduation. The prevalence of CKD was found to be high, and was in the following order 48.2% patients in low income group, (28.8%) patients in high income group and (23.1%) patients in medium income group, which was in accordance with the earlier studies, all participants with CKD were unaware of their disorders until they were in later stages and significantly true in case of lower educational group for whom prevalence was higher and awareness substantially low.[9] Low income and low education levels were associated with greater impairment in functioning and well being in patients with chronic kidney disease.[10] (Table 2)

21(40.4%) patients were employed out of which only 14(26.9%) patients resumed their employment after initiation of dialysis.

25 (48.1%) patients had history of smoking and 20 (38.5%) of alcohol consumption, thus individuals who are smokers and heavy drinkers had substantially higher odds of developing kidney disease, thereby addressing both of these life style factors can reduce the chances of developing CKD.[12]

Patient education with family involvement, identification of at risk patients for noncompliance and assisting patients to identify and manage difficulties with life-style changes

Table 2: Demographic details of the patients	
Demographic Details	**Number & Percentage**
Gender	
Males	33 (63.5 %)
Females	19 (36.5%)
Age	
50-59 yrs	(28.8 %)
40-49 yrs	(21.1%)
30-39 yrs	(19.3%)
60-69 yrs	(19.2%)
Causes of CKD	
Hypertension	25 (48.1%)
Diabetes mellitus	4 (7.6%)
Combination	17 (32.7%)
Others	6(11.6%)
Dialysis	
Yes	40(76.9%)
No	12 (23.1%)

related to haemodialysis are important elements in promoting compliance among the haemodialysis patients. Also, active nutritional counseling can improve certain important biochemical parameters and fluid overload problems in patients on maintenance haemodialysis. The quality of life is related to nutritional status in predialysis patients and providing individualized nutritional counseling improves many components of quality of life compared with standard nutrition care in the stages prior to dialysis treatment.[13]

Recent studies show that the functioning and well being of individuals with CKD is related to such factors as: late referral and inadequate pre dialysis care. Reduced kidney function is associated with poorer psychosocial functioning, higher anxiety, higher distress, deceased sense of well being, higher depression, and negative health perception.[14-15]

Significant changes prior to counseling and after counseling are depicted in table no.02. After second follow up, considerable increase in the proportion of the patients with improved social functioning was observed (p<0.05). The emotional wellbeing at base line was found to be poor and unstable in 5(9.6%) and 47 (90.4%) patients, respectively. Considerable improvement was observed at the second follow up (p<0.05) wherein the unstable and satisfactory condition was observed in 50(96.2%) and 2 (3.8%) patients, respectively. The mental status at the base line was found to be poor and unstable in 20(38.5%) and 32(61.5%) patients respectively. Significant improvement in the mental status (p<0.05) of the patients was observed as poor and unstable in 10(19.2%) and 42 (80.8%) patients, respectively during the first follow up. Further improvement was observed during the second follow up (p<0.001), wherein 5 (9.6 %), 46 (88.5 %)

and 1 (2.0 %) patient rated their mental status to be poor, unstable and satisfactory respectively. The self evaluation of overall wellbeing, at base line was found to be poor and unstable in 1(2%) and 51(98%) patients respectively. After counseling significant improvement was observed at first follow up (p<0.05), wherein 52(100%) patient self evaluated as unstable. Further improvement was observed during second follow up (p<0.001) wherein 1(2%), 35(67.3%) and 16 (30.8%) patients self evaluated themselves as poor, unstable and satisfactory respectively.

At first follow up, a statistically significant improvement was observed in mental and self evaluation parameters which is shown in table no 03. The counseling could help in providing mental support and understanding about the disease also in improving the self esteem of the patients. Patients also realized the importance of compliance to dialysis and medications. (Table 3)

During the second follow up, statistically significant improvement was noted in social functioning, emotional, mental and self evaluation parameters, indicating the impact

Table 3: QOL before and after counseling (First follow-up)			
Function	Before counseling (Mean score ± S.D)	After counseling (Mean score ± S.D)	P value
Physical functioning	10.653±1.607	10.558±1.622	0.5835
Bodily pain	5.538 ± 0.670	5.269 ± 0.795	0.080
General health	8.057 ± 1.335	7.942 ± 1.227	0.5022
Vitality	8.384 ± 0.843	8.346 ± 1.170	0.8110
Social functioning	8.442 ± 1.178	8.461 ± 0.938	0.8805
Emotional	8.076 ± 1.118	8.269 ± 0.629	0.2736
Mental	6.730 ± 0.717	7.0 ± 0.686	0.0181
Self evaluation	4.384 ± 0.529	4.615 ± 1.0.529	0.0128

Table 5: Quality of life assessments at first and second follow-up					
Parameters	Alternative answers	First follow up(%)N=52	P-value	Second follow up(%)N=520	P-value
Physical functioning	limited a lot some of the time limited a little not at all	3 (5.8 %) 42 (80.8 %) 7 (13.5%) 0	0.5835	0 51 (98%) 1 (2.0%) 0	0.4146
Bodily Pain	Severe Moderate Mild none	7 (13.5 %) 45 (86.5%) 0 0	0.080	2 (3.8 %) 50 (96.2 %) 0 0	0.1822
General Health	Poor Unstable Satisfactory Excellent	4 (7.7%) 46 (88.5%) 2 (3.8 %) 0	0.5022	3 (5.7%) 46 (88.5 %) 3 (5.7%) 0	0.2004
Vitality	Poor Unstable Satisfactory Excellent	2 (3.8%) 46 (88.5%) 4 (7.7%) 0	0.8110	1 (2.0%) 51(98.1 %) 0 0	0.2619
Social functioning	limited a lot some of the time limited a little not at all	1 (2.0%) 50 (96.2 %) 1 (2.0 %) 0	0.8805	0 48 (92.3 %) 4 (7.7 %) 0	0.0175
Emotional	Poor Unstable Satisfactory Excellent	1 (2.0 %) 51 (98.1 %) 0 0	0.2736	0 50 (96.2 %) 2 (3.8 %) 0	0.0143
Mental	Poor Unstable Satisfactory Excellent	10 (19.2 %) 42 (80.8 %) 0 0	0.0181	5 (9.6 %) 46 (88.5 %) 1 (2.0 %) 0	<0.001
Self evaluation	Poor Unstable Satisfactory Excellent	0 52 (100 %) 0 0	0.0128	1 (2.0 %) 35 (67.3 %) 16 (30.8 %) 0	<0.001

of counseling. Improved social functioning, emotional stability and family support were observed as an outcome of continued counseling sessions provided to the patients which helped in improving the patient's quality of life, social acceptability and family support in patients suffering from chronic kidney disease. A comparison between Quality of life assessments at base line, first and second follow up values clearly suggests that there is a huge impact of counseling on social functioning, emotional, mental and self evaluation status as shown in table 4.

The study confirms previous observations in CKD and dialysis patients, with significantly low quality of life measures. A similar quality of life study carried out on Taiwanese HD patients reported lower levels of physical and mental aspects of quality of life except for higher bodily pain tolerance.[16] Thus, it supports the fact that education initiatives in the form of counseling can help in improving the patient's quality of life and family support in patients suffering from chronic kidney disease.

CONCLUSIONS

It is a major challenge for health care providers to develop various strategies to help improve the quality of life in CKD and haemodialysis patients. Hence, an educational interventional policy was developed and tested which could not only help in educating the patients but also assist in improving the quality of life in the same. The counseling and patient education provided in this study helped in improving the social functioning, emotional , mental and self evaluation status. However, no significant improvement was observed in physical functioning, general health, vitality and certain somatic symptoms.

It is important to note that, a statistically significant improvement was observed in mental and self evaluation parameters after first follow up at the end of 1 month. Subsequently, after the second follow up at the end of 3 months, statistically significant improvement was also noted in social functioning and emotional wellbeing. These observations emphasize the impact of periodic counseling at regular intervals to improve the quality of life in chronic kidney disease and haemodialysis patients.

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