A Prospectivestudy on Assessment of Acceptance and Functional Capacity of Chronic Kidney Disease Patients in Tertiary Care Hospital

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Abstract:

Introduction: Chronic kidney disease (CKD) is a type of kidney disease in which there is gradual loss of kidney function over a period of months or years.As there is a continuous rapid rise in the prevalence of various chronic diseases due to poor knowledge and adherence to management, there is a need to improve knowledge to improve quality life and preserve functioning and slow down the process rapid progression into end stage and thus prevent complications.

Objectives: (1) To assess and evaluate acceptance of patients regarding their condition in various stages of CKD by Illness Cognition Questionnaire (ICQ). (2) To evaluate the self-sufficiency and functional capacity of CKD patients by Karnofsky Performance Status (KPS).

Method: A prospective, observational study was conducted on patients in both inpatient and outpatient Department of Nephrology Sagar Hospitals, Bengaluru for a period of 6months. A total of 100 were patients were enrolled based on inclusion criteria, their demographic details such as age, gender and creatinine levels were collected and interviewed to score the ICQ and KPS questionnaires. Patients were followed up and re-interviewed after a time interval of 2months after giving patient counseling regarding management and maintenance of the disease and re-scored for ICQ.

Results: A total of 100 patients were included in the study based on the inclusion and exclusion that were assessed for functioning capacity by Karnofsky Performance Status Scale questionnaire, it had 3 main categories with sub scoring under each category. Patient distribution in Category A (30%), Category B (54%) and Category C (16%). The total study population was interviewed and pre scores of helplessness, acceptance and perceived benefits for ICQ were given before counseling. Out of the total study population 64 patients were again scored after counseling to obtain post scores. Acceptance and perceived benefits was found to have a significant increase in patients before and after counseling (A: $P=<0.0001$) and (PB: $P=<0.0001$), but no significant difference was seen in helplessness among the patients (H: $P=0.2671$).

Conclusion: This study concluded that impact of pharmacist interventions by means of patient counseling improved the quality of life in CKD patients.

Keywords: Functioning capacity, Acceptance, Helplessness, Perceived Benefits.

INTRODUCTION

Chronic kidney disease (CKD) is a type of kidney disease in which there is gradual loss of kidney function over a period of months or years.[1]

Recent study showed that, mean age of the population was 45.22 ± 15.2 years. According to Singh AK et al study, the prevalence of CKD was 17.2%. 43.1% of them had hypertension, and 18.8% had diabetes.[2]The incidence increases exponentially with age such that some degree of CKD is almost inevitable in persons over 80 years of age. Social deprivation is also associated with a higher prevalence of CKD. It is a common condition affecting up to 10% of the population in Western societies and is more common in some ethnic minority populations and in females. The etiology of CKD can include Ischaemic/hypertensive renal disease, Metabolic diseases, Chronic glomerulonephritis and Lower urinary tract disease. The onset of symptoms is slow and insidious so that patients may not realise that they are unwell. Symptoms include polyuria, nocturia, proteinuria, haematuria, hypertension and fluid overload. Complications of CKD are eye damage, uraemia, anaemia, bone disease, neurological changes, reduced muscle function, electrolyte disturbances, vitamin-D deficiency.[3]Diagnosis of CKD is largely based on history, examination and urine dipstick combined with the measurement of the serum creatinine level.[4]

Treatment of chronic kidney disease (CKD) can slow its progression to end-stage renal disease (ESRD) because the symptoms of chronically progressive renal failure develop slowly. The increasing use of treatments to attenuate progressive CKD, most notably glycemic control in diabetic CKD and blood pressure treatment with ACE inhibitors and ARBs in almost all forms of CKD, have coincided with a plateau in the incidence of ESRD.[5]

Quality of life (QOL) includes subjective evaluations of both positive and negative aspects of life. World Health Organization (WHO) defines health as a "state of complete physical, mental and social well-being, and not merely the absence of disease and infirmity. The concept of health-related quality of life (HRQOL) and its determinants have evolved since 1980s to encompass those aspects of overall quality of life that can be clearly shown to affect health, either physical or mental.[6] The incidence and prevalence of chronic kidney disease (CKD) is increasing worldwide.

Some studies have evaluated the quality of life (QOL) of patients undergoing dialysis, but the data regarding QOL of patients on conservative treatment for CKD and the relationship between QOL and the early stages of the disease is limited. The QOL of these patients seems to be poorer than that of the general population, but was better than the patients who are on dialysis. Certain factors such as anemia, fluid over load, electrolyte imbalance and other complications associated with the diseases and early treatment have an impact on the QOL of the patients. Further studies are required to obtain the data on association between QOL and progression of kidney insufficiency.

The Karnofsky Performance Status (KPS) is helpful in assessing self-sufficiency and functional capacity status, which in turn determines functional impairment of daily activities. This instrument has been widely used in studies on patients with CKD and other chronic diseases. It can be used to compare effectiveness of different therapies and to assess the prognosis in individual patients. Karnofsky performance status index allows patients to be classified as to their functional impairment. The lower the Karnofsky score, the worst the survival for most serious illness.[7]

Chronic diseases require continuous medical care needs along with patient education, self care, lifestyle modifications and support by the individual too so as to prevent the risk of complications and associated co-morbidities along with management of the disease. Chronic disease and its management has considerable amount of impact majorly on the health status and quality of life and thus put limitations in routine activities such as physical, social and psychological well-being of the patients. The role of pharmacist in the healthcare system has expanded from a product-centered approach towards patient centered care and clinical activities.Several studies conducted have reported that patient adherence was improved through patient education and medication counseling. But, most of the studies in the literature were carried out in countries such as United States, United Kingdom, Canada and Australia. Such service is foreseen to have a greater effect in India than that of developed countries. The roles of pharmacist in patient care is not well established and is not much seen in practice here in India, as there is a continuous rapid rise in the prevalence of various chronic diseases due to poor knowledge and adherence to management.[8]Therefore, this study intends to improve the quality of life of patients with chronic diseases such as CKD by means of providing patient counseling.

METHODOLOGY

This study is a prospective, observational study conducted for a period of six months (September 2018 to February 2019) in the Department of Nephrology, Sagar Hospitals, Bengaluru. Study protocol was prepared and submitted to the Dayananda Sagar College of Pharmacy institutional human ethics committee and issued ethical clearance certificate (DSCP/P-D/IHEC/2018-19/012) for the same.

The study included patients of all gender above the age of 18 years diagnosed with CKD with or without haemodialysis, those who were willing to participate in the study, also patients with or without co-morbid disease conditions. The study excluded those who were having cognitive defects and those who were having speech / hearing problem. Source of data gathered from Department of Nephrology Sagar Hospital which included laboratory investigation, details of sociodemographic data, disease history, questionnaires of Illness cognition and Karnofsky performance status. Based on serum creatinine level CKD patients are classified into different stages

Illness cognition questionnaire (ICQ): Evers AW et al, prepared illness cognition questionnaire for chronic diseases. Validity and robustness was constructed for this questionnaire for the three-factor structure across patients with chronic pain and chronic fatigue. Patients diagnosed with a chronic illness have their own beliefs about their illness, defined as illness cognitions. Illness cognitions can be described as a patient's perception, interpretation, and understanding of the disease and its treatment. For example, patients who perceive their illness as having serious consequences and as being chronic, experience more physical, emotional, and social problems than do patients who perceive their illness as being curable and controllable. For our analyses, we used the acceptance subscale of the ICQ. This questionnaire (18 items) consists of three subscales (each 6 items): "acceptance" (e.g. I have learned to accept the disability of my disease), "helplessness" and "disease benefits". Items were scored on a 4- point scale with a range from 1-4 with a maximum score of 24. In this questionnaire 1 indicates 'not at all' and 4 indicate "completely". In helplessness category 'not at all' means the patient is able to do anything to help himself and 'completely' means the patient is helpless to act effectively. Under acceptance category 'not at all' indicates that the patient has not accepted the disease and 'completely' indicates patient has accepted his disease completely and in perceived benefits 'not at all' means patient has not received any benefits from this disease and 'completely' means they have obtained some positive changes from their disease (Shown in Figure 1).[9]

Karnofsky performance status (KPS): David A Karnofsky et al, prepared this performance status as an attempt to quantify cancer patient's general wellbeing and activities of daily life. This was later used for all types of chronic diseases. Karnofsky performance status index allows patients to be classified as to their functional impairment. This can be used to compare effectiveness of different therapies and to assess the prognosis in individual patients. The lower the Karnofsky score, the worst the survival for most serious illness. The Karnofsky performance score ranking runs from 100 to 0, where 100 is "perfect" health and 0 is "death". Practitioners occasionally assign performance scores in between standard intervals of 10 (Shown in Figure 2).[7]

Collection of data and study procedure: To obtain consent from the patients through informed consent form. The patient demographics (name, sex, age, height, weight, socio-economic status, etc.) in patient data collection form along with serum creatinine values were recorded from case files and the patients were classified into different stages based on eGFR calculator by substituting serum creatinine value in MDRD equation.After collection of demographics, a set of questionnaires comprising of illness cognition questionnaire and Karnofsky performance status were given and the data regarding their acceptance, knowledge of the disease and their functioning status were obtained. Patients were given counseling to improve their acceptance and for better management of their disease and its complications with the help of counselling aids such as patient information leaflets and posters. Follow up of patients who were given counseling was done after a period of two months. Acceptance, knowledge of their disease and their functioning status were reassessed with the help of illness cognition and karnofsky performance status questionnaires. The obtained data was subjected to suitable statistical analysis (Shown in Figure 3).

Statistical analysis: Data was recorded on a pre-designed proforma and managed on an MS Office Excel spread sheet. The descriptive statistics were represented by mean ± standard deviation and percentages. The differences between the groups were determined by the parametric t-test & non-parametric statistical test: fisher's exact test or ANOVA tests wherever appropriate. Graph Pad prism-5 statistical software was used for the data analysis. Statistical significance was defined as p <0.05. All P values were two tailed.

RESULTS

According to the study out of the total 100 participants, prevalence of the disease was predominantly seen in males (65%). Patients of the age group 51-70 were highly prevalent with CKD males (30%) females (20%). The total study population was classified into different stages of CKD based on their GFR values. Stage 5 was more predominant (43%) and Stage 1 and Stage 2 were found to be the least predominant stages (1%) of total study population. Among the total study population 35% of patients undergoing dialysis (Shown in Table 1).

Karnofsky Performance Status Scale questionnaire was answered by 100 patients, the total study population. The scale had 3 main categories with sub scoring under each category. Category A (30%)patients were able to carry on normal activity and to work; no special care needed for them, Category B (54%) of patients were unable to work; able to live at home and care for most personal needs; varying amount of assistance needed for them and Category C (16%) patients were unable to care for self, requires equivalent of institutional or hospital care; disease may be progressing rapidly in this set of population. The total study population was classified into different scores based on their functioning status and capacity to do work. The distribution of total study population into different scores is as follows, no patients scored 100 as no patients with CKD were not able to work normally with no complaints or no evidence of disease. Among the total study population only 6% scored 90 were able to carry out normal activity with minor signs and symptoms of the disease; 24% of the patients who scored 80 were able to do normal activity with some effort showing some signs and symptoms of disease; 19% of the patients scored 70 were able to care for self, but were unable to carry on normal activity or do active work; 21% of the patients who scored 60 required occasional assistance, but are unable to care for most of their personal needs; 14% of the patients scored 50 required considerable assistance and frequent medical care; 14% of the patients who scored 40 were disabled and required special care and assistance. No patients were found to be severely disabled, very sick or moribund or require active supportive treatment or require hospital admission although death is not imminent and 2%of the patients scored 0 i.e. died after prolonged hospitalization (Shown in Table 2).

Table 1: Clinical characteristics of CKD patients.

Variables	Percentage of patients (%)
Gender	
Male	65
Female	35
Age	
11-30	1
31-50	19
51-70	50
71-90	28
90-110	2
Stages of CKD	
Stage 1	1
Stage 2	1
Stage 3a	5
Stage 3b	20
Stage 4	30
Stage 5	43
Dialysis	
Yes	35
No	65

Table 2: Karnofsky Performance Status of study population.

Category	Score	Percentage of patients (%)
A	100	0
	90	6
	80	24
B	70	19
	60	21
	50	14
C	40	14
	30	0
	20	0
	10	0
	0	2

Table 3: Factors affecting functioning status of CKD patients.

FACTORS	Categories	Mean	P-value
Age	≤60	64.88 ± 17.62	0.5259
	>60	61.86 ± 17.37	
Gender	Male	64.31 ± 16.77	0.3619
	Female	60.86 ± 18.69	
Dialysis	Yes	56.57 ± 14.54	0.0054
	No	66.62 ± 17.96	
Stages	1	60 ± 0	0.1488
	2	70 ± 0	
	3a	76 ± 5.48	
	3b	66.5 ± 20.59	
	4	63.00 ± 19.50	
	5	60 ± 14.96	

Table 4: Scores of ICQ in CKD patients.

Parameters	Mean ± S.D		P-Value
	Pre	Post	
Helplessness	2.28 ± 0.73	2.19 ± 0.52	0.2671
Acceptance	2.26 ± 0.76	2.97 ± 0.53	<0.0001
Perceived benefits	2.40 ± 0.64	2.95 ± 0.42	<0.0001

Table 5: Factors affecting ICQ – Acceptance Scores.

ICQ-Acceptance				
FACTORS	Categories	Mean ±SD		P-Value
		Pre	Post	
Age	≤60	2.23±0.69	3.01±0.43	< 0.0001
	>60	2.28±0.81	2.94±0.60	< 0.0001
Gender	Male	2.20±0.78	2.93±0.55	< 0.0001
	Female	2.41±0.70	3.08±0.48	0.0005
Dialysis	Yes	2.49±0.85	2.97±0.62	0.001
	No	2.14±0.68	2.97±0.48	< 0.0001
Stages	3a	2.17±0.20	3.23±0.15	0.0011
	3b	1.90±0.63	2.80±0.50	< 0.0001
	4	2.17±0.73	3.00±0.52	< 0.0001
	5	2.51±0.83	2.98±0.59	0.0007

Karnofsky Performance Status (KPS) scores in elderly and non-elderly were (61.86 ± 17.37) and (64.88 ± 17.62) respectively. The functioning capacity was found to be more in males (64.31 ± 16.77) compared to females (60.86 ± 18.69) but it was not statistically significant. Patients on dialysis scored (56.57 ± 14.54) lower than that of patients not under dialysis (66.62 ± 17.96) which was found to be significant statistically (P=0.0054). Patients with stage 3a CKD (76 ± 5.48) showed better functional capacity than that of patients in stage 5 CKD (60 ± 14.96) (P=0.1488) (Shown in Table 3).

The total study population was interviewed and pre scores of helplessness, acceptance and perceived benefits for Illness Cognition Questionnaire were given before counseling. 64 patients out of the total study population were again scored with a time interval of 2months after counseling for better management of disease to obtain post scores.The mean post scores of Helplessness were found to be lower than that of

the mean pre scores (2.19 ± 0.52 vs. 2.28 ± 0.73) but there was no significant difference(P=0.2671).Mean post scores of acceptance and perceived benefits were found to increased than that of mean pre scores of the patients (2.97 ± 0.53 vs. 2.26 ± 0.76) and (2.95 ± 0.420 vs. 2.40 ± 0.64) respectively. Acceptance and Perceived Benefits of patients before and after counseling was found to have a significant increase (A: P=<0.0001) and (PB: P=<0.0001) (Shown in Table 4).

ICQ was used to access helplessness, acceptance and perceived benefits in the study population before and after counseling session, to evaluate the effect of patient counseling on these parameters in 64 CKD patients. In elderly patients the ICQ pre and post scores of helplessness, acceptance and perceived benefits were (2.29±0.72 vs. 1.53±0.55), (2.28±0.81 vs. 2.94±0.60), (2.40±0.70 vs. 3.00±0.50) respectively and there was a significant difference in pre and post scores of helplessness, acceptance and perceived benefits (H: P=0.0023, A: P=< 0.0001 and PB: P=< 0.0001).In patients ≤60 years of age helplessness, acceptance and perceived benefits of pre and post scores were (2.25±0.75 vs. 1.88 ±0.48), (2.23±0.69 vs. 3.01±0.43), (2.39±0.55 vs. 2.89±0.30) respectively and significant difference was found in all parameters of ICQ (H: P=0.0415, A: P=< 0.0001 and PB: P=< 0.0001).Both in males and females significant change was found in acceptance and perceived benefits (Males; A: P=< 0.0001 and PB: P=< 0.0001) and (Females; A: P=0.0005, PB: P=0.0006) respectively. The scores of Helplessness, acceptance and perceived benefits pre and post counseling of patients who are undergoing dialysis (2.66±0.69 vs. 1.48±0.54), (2.49±0.85 vs. 2.97±0.62) and (2.65±0.67 vs. 2.92±0.55) respectively was proved statistically (H: P=0.188, A: P=0.001, PB: P=0.0002).The scores of helplessness, acceptance and perceived benefits were high in dialysis patients compared to non-dialysis patients with respect to pre and post scores. In those patients who were not undergoing any kind of dialysis the scores of Helplessness, acceptance and perceived benefits of pre and post counseling were (2.06±0.67 vs. 1.03±0.44), (2.14±0.68 vs. 2.97±0.48) and (2.26±0.58 vs. 2.97±0.34) respectively which indicated that all parameters of ICQ were significantly improved (H: P=0.0489, A: P=< 0.0001, PB: P=< 0.0001).Patients were classified into different stages of CKD based on their GFR and were scored to obtain pre and post scores of helplessness, acceptance and perceived benefits for ICQ. Patients in stage 3a were found to have scores (2.10±0.48 vs. 1.33±0.55), (2.17±0.20 vs. 3.23±0.15) and (2.23±0.15 vs. 3.06±0.40). Patients in 3b stage had scores (1.97±0.63 vs. 1.68±0.32), (1.90±0.63 vs. 2.80±0.50) and (2.15±0.40 vs. 2.90±0.34) which showed a strong significant improvement from pre counseling to post counseling compared to Stage 4 patients (2.28±0.73 vs. 1.96±0.59), (2.17±0.73 vs. 3.00±0.52) and (2.39±0.75 vs. 3.01±0.42) and patients in stage 5 i.e. ESRD scored (2.44±0.79 vs. 2.31±0.52), (2.51±0.83 vs. 2.98±0.59) and (2.54±0.67 vs. 2.91±0.48) (Shown in Tables 5, 6 & 7).

Table 6: Factors affecting ICQ – Helplessness Scores.

FACTORS	Categories	Mean ±SD		P-Value
		Pre	Post	
Age	≤60	2.25±0.75	1.88 ±0.48	0.0415
	>60	2.29±0.72	1.53±0.55	0.0023
Gender	Male	2.26±0.79	1.64±0.54	0.076
	Female	2.32±0.56	1.78± 0.46	0.341
Dialysis	Yes	2.66±0.69	1.48±0.54	0.188
	No	2.06±0.67	1.03±0.44	0.0489
Stages	3a	2.10±0.48	1.33±0.55	0.0035
	3b	1.97±0.63	1.68±0.32	0.0431
	4	2.28±0.73	1.96±0.59	0.496
	5	2.44±0.79	2.31±0.52	0.790

Table 7: Factors affecting ICQ – Perceived benefits Scores.

FACTORS	Categories	Mean ±SD		P-Value
		Pre	Post	
Age	≤60	2.39±0.55	2.89±0.30	< 0.0001
	>60	2.40±0.70	3.00±0.50	< 0.0001
Gender	Male	2.35±0.66	2.94±0.47	< 0.0001
	Female	2.51±0.59	2.97±0.30	0.0006
Dialysis	Yes	2.65±0.67	2.92±0.55	0.0002
	No	2.26±0.58	2.97±0.34	< 0.0001
Stages	3a	2.23±0.15	3.06±0.40	0.0031
	3b	2.15±0.40	2.90±0.34	< 0.0001
	4	2.39±0.75	3.01±0.42	0.0001
	5	2.54±0.67	2.91±0.48	0.0001

Sl no	To what extent do you agree with the following statements?	Not at all	Somewhat	To a large extent	Completely	Total score
	HELPLESSNESS					
1.	Because of my illness I miss the things I like to do most.	1	2	3	4	
2.	My illness controls my life.	1	2	3	4	
3.	My illness makes me feel useless at times.	1	2	3	4	
4.	My illness prevents me from doing what I would really like to do.	1	2	3	4	
5.	My illness limits me in everything that is important to me.	1	2	3	4	
6.	My illness frequently makes me feel helpless.	1	2	3	4	
	ACCEPTANCE					
1.	I can handle the problems related to my illness.	1	2	3	4	
2.	I have learnt to live with my illness.	1	2	3	4	
3.	I have learnt to accept the limitations imposed by my illness.	1	2	3	4	
4.	I can accept my illness well.	1	2	3	4	
5.	I think I can handle the problems related to my illness, even if the illness gets worse.	1	2	3	4	
6.	I can cope effectively with my illness.	1	2	3	4	
	PERCEIVED BENEFITS					
1.	Dealing with my illness has made me a stronger person	1	2	3	4	
2.	I have learned a great deal from my illness.	1	2	3	4	
3.	My illness had made life more precious to me.	1	2	3	4	
4.	Looking back, I can see that my illness has also brought about some positive changes in my life.	1	2	3	4	
5.	My illness has helped me realize what is important in life.	1	2	3	4	
6.	My illness has thought me to enjoy the moment more.	1	2	3	4	

Figure 1: Illness Cognition Questionnaire.

Able to carry on normal activity and to work; no special care needed.	100	Normal no complaints; no evidence of disease.
	90	Able to carry on normal activity; minor signs or symptoms of disease.
	80	Normal activity with effort; some signs or symptoms of disease.
Unable to work; able to live at home and care for most personal needs; varying amount of assistance needed.	70	Cares for self; unable to carry on normal activity or to do active work.
	60	Requires occasional assistance, but is able to care for most of his personal needs.
	50	Requires considerable assistance and frequent medical care.
Unable to care for self; requires equivalent of institutional or hospital care; disease may be progressing rapidly.	40	Disabled; requires special care and assistance.
	30	Severely disabled; hospital admission is indicated although death not imminent.
	20	Severely disabled; hospital admission is indicated although death not imminent.
	10	Moribund; fatal processes progressing rapidly.
	0	Dead

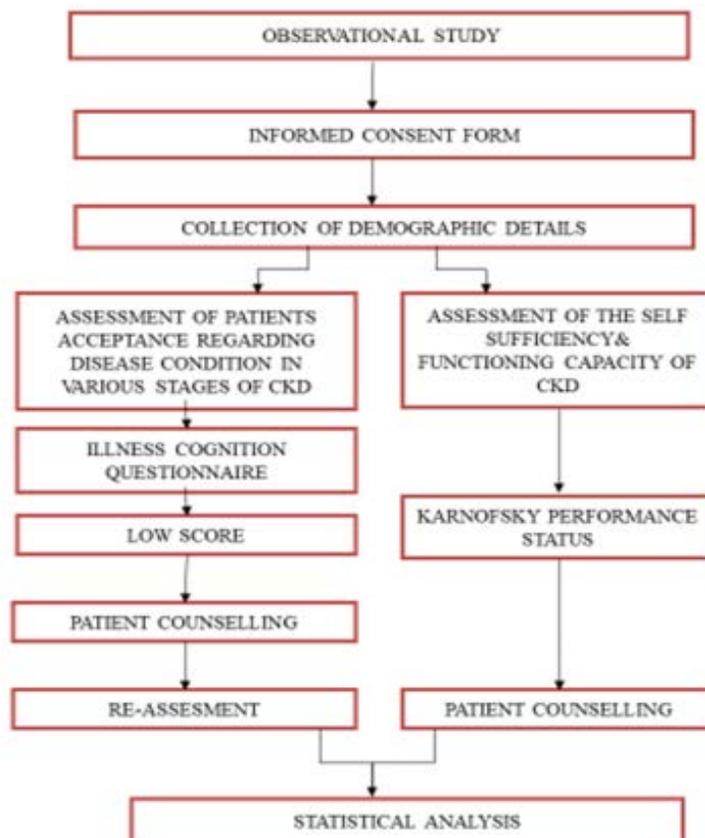**Figure 2: Karnofsky Performance Status Questionnaire.**

Figure 3: Diagrammatic representation of study procedure.

DISCUSSION:

The Study was conducted to improve quality of life in CKD patients for a period of 6 months in nephrology department of Sagar Hospital. A total of 100 patients were enrolled in the study based on the inclusion and exclusion criteria.

Our study which is in accordance to the previous literature of epidemiology and outcomes of CKD, showed that prevalence of presence of the disease was predominantly seen in males than in females. Factors such as unhealthier lifestyles, damaging effects of testosterone in males and protective effects of oestrogens were found to be the reasons for prevalence rates of CKD.[10]

According to Indian journal of nephrology where study was conducted on prevalence of CKD among adults, the study conveyed that majority of CKD subjects were in the age group of 55-69 which is in compliance with our study that indicate CKD was seen most commonly in the age group between 51-70 years. The reason for prevalence rates of CKD in older patients was found that risk factors for CVD such as diabetes mellitus, hypertension, and cardiac disease are very prevalent in older population which led to the development of renal failure.[11]

Total study population was classified into different stages of CKD based on their GFR value. It was observed that previous studies showed, stage 3 patients were more prevalent to CKD which was opposed to our study because of lifestyle changes or reduced management and due to geographical area based, our study showed higher prevalence of CKD in stage 5.

As of previous studies results over 130,000 patients undergo dialysis and this number has been increasing drastically by 232per million populations due to poor management and increased prevalence of disease on its own. Haemodialysis was found to be the most common mode followed by transplant and peritoneal dialysis. India is estimated to have about120, 000 patients on haemodialysis. Among the total percentage of study subjects, 35% of patients were undergoing dialysis and 65% were not undergoing any kind of dialysis. Dialysis is usually undergone by patients who are in ESRD or stage 5 patients and to patients in other stages based on their Serum Creatinine and GFR values.[12]

Karnofsky performance status (KPS) questionnaire was provided to the patients and the data that was collected showed that 54% of total study population belonged to category which is unable to work and care for most personal needs and 24% of the patients were able to do normal activity with effort and with some signs and symptoms of disease. According to American Kidney Fund program, the reason behind the reduced functional capacity in CKD patients was due to the symptoms and complications of the disease that is found in the patients.

Considering the factors affecting KPS, study shows that patients >60 years had lower scores of KPS comparative to patients ≤ 60 years of age which indicates that older people had lower functioning capacity than that of patients ≤60 years of age. This was in accordance to the previous study

done on frailty in older adults: evidence for the phenotype, older people wasfrailer and had reduced functioning ability due to muscle weakening due to aging.[13]

Our study indicates, lower KPS scores in females than in males showing better functioning ability in males. In previous study females had higher creatinine levels than males which showed that females had more weakness which reduce health and reduced functioning capability.[14]

The results of our study indicate that scores of KPS in dialysis patients is comparatively lesser than that of non-dialysis patients which indicates that functioning status of dialysis patients is drastically reduced than that of non-dialysis patients, which is significant to the previous study where initiation of dialysis was associated with decline in functional status independent of age and gender in comparison to non-dialysis patient.[15]

According tothe previous study done on quality of life in CKD patients shows that physical functioning begins to decline in the early stages of CKD and it continues unabated in the ESRD, whichis in compliance with our study which designate that early stages of CKD has higher KPS score which means that they have better functioning capacity than that of found in stage 4 & 5.[16]

Illness cognition questionnaire (ICQ) was not applied to any previous study related to chronic kidney disease. ICQ was used to obtain results regarding helplessness, acceptance and perceived benefits in population suffering from chronic kidney disease.

The total study population was interviewed and the pre scores of helplessness, acceptance and perceived benefits for ICQ were obtained. Counseling was given to the patients and the patients were followed up. 64 patients out of the total study population were re interviewed after a time interval of 2months of counseling so as to the obtain post scores for parameters of ICQ. It was noticed that the post scores of helplessness category was lower than the pre scores and the post scores in the acceptance and perceived benefits of patients were higher when compared with the pre scores. Pre and post scores indicate before and after the counseling.

In helplessness category of ICQ, it was found that non dialysis, males and patients >60 years of age had greater helplessness scores or were able to care for themselves than patients belonging to dialysis, females and ≤60 years of age. Stage 3a patients had good significant change when compared to stage 5 patients who had the least change. It was observed that in acceptance category of ICQ, patients ≤60 years of age, non-dialysis and males, have accepted their disease condition better prior to counseling than dialysis, females and >60 years patients. Patients belonging to stage 3b and 4 have greater significance when compared to the least which is stage 5.Patients ≤60 years, males and non-dialysis patients have lower perceived benefits scores or have obtained some positive changes from their disease when compared to females, dialysis and >60 years of age

patients. It was also observed that stage 3b patients have higher significant change than stage 5 patients.

CONCLUSION:

Assessment of acceptance and functional capacity of chronic kidney disease patients is an evaluation tool which helps to assess extent of patient and patient caregiver knowledge and acceptance towards disease. Poor knowledge and reduced acceptance can lead to increased risk and complications of the disease due to poor management and reduces quality of life and functioning ability as well. In CKD, it becomes necessary for healthcare team to educate the patients regarding disease management to prevent progression of the disease and is also the equal responsibility of patients to coordinate with the health care team and involve to understand and change their perception about the disease and its management in order to preserve the functional capacity thus improve quality of life both physically and mentally. It also helps in identifying people with lower acceptance and knowledge who are still in early stages of the disease and thus allowing the health care team to educate the patients on better disease management so as to prevent complications and at earlier stages in order to prevent them from progressing into end stage rapidly and preserving good functional ability with better quality of life.

This study concluded that impact of pharmacist interventions by means of patient counseling improved the quality of life in CKD patients.

Abbreviations:

CKD: Chronic Kidney Disease, ESRD: End Stage Renal Disease, ACE: Angiotensin Converting Enzyme, ARB: Angiotensin Receptor Blockers, QOL: Quality Of Life, WHO: World Health Organization,HRQOL: HealthRelated Quality of Life, KPS: Karnofsky Performance Status, ICQ: Illness Cognition Questionnaire, eGFR: Estimate of Glomerular Filtration, GFR: Glomerular Filtration Rate, CVD: Cardiovascular Disease.

Competing interests:

The authors declare that they have no competing interests

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