



Research Article

## An Interventional Study On Hemodialysis Patient And Impact Of Patient Counseling To Improve Quality Of Life

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### ABSTRACT

**Background:** The End Stage Renal Disease patients undergo hemodialysis which requires lifetime treatment, which may eventually affect their quality of life. The disability affects different domains of patient lives. Study measuring the Quality Of Life in patients on renal replacement therapy are limited in the Indian scenario.

**Aim:** To evaluate the Quality Of Life in patients who undergoes hemodialysis in the hospital setting by applying KDQOL™ -36 scale. **Objective:** This study was conducted to assess the effect of patient counseling on their health-related Quality Of Life. The change in Quality Of Life before and after counseling provides a better understanding about the impact of intervention among them. The study also assess any possible infection that can be acquired from dialysis unit due to unhygienic practices followed by the patient pre and post hemodialysis. **Methods:** This was a prospective randomized study carried out over 6 months in the hemodialysis unit of KIMS Health Al-Shifa hospital, Perintalmanna. About 385 hemodialysis patients were evaluated using KDQOL™-36 questionnaire to assess their health-related Quality of Life before and after counseling. The second follow up was conducted after 4 weeks to study the effect of patient counseling. The intervention was done on hygiene practices to prevent any possible chances of infection pre & post hemodialysis. Individual dietary modifications the patient had to follow was also explained. **Result:** Statistically significant difference in the Mental Component Score (MCS) ( $P < 0.01$ ), Burden Of Kidney Disease (BKD) ( $P < 0.01$ ), Symptoms and Problem of kidney disease (SPKD) ( $P < 0.01$ ) and Effect of kidney disease (EKD) ( $P < 0.01$ ) was seen before and after counseling. The intervention had help to improve the overall QOL in patients. **Conclusion:** The study provided an insight into the factors that affect the Quality Of Life in hemodialysis patients. With a proper intervention of individualized counseling to patients about the disease, hygiene practices, dietary practices and precautions to be followed on Pre, During and Post hemodialysis can help to improve the Health Related Quality Of Life.

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## INTRODUCTION

Chronic Kidney disease (CKD) has been increasingly recognized as a global health burden. The socioeconomic burden caused by the disease affects the Quality of Life (QOL) in such patients. The individuals with End-Stage Renal Disease (ESRD) perceives an increasing amount of symptoms, physical and mental instability which may affect the Health-Related Quality of Life (HRQOL). The individualized patient counseling may help to overcome these issues. Patient counseling focusing on diet, compliance, medications, hygiene practices will be effective to improve HRQOL. Patients with renal failure are susceptible to infection. The Hemodialysis Vascular Access Device (HVAD) Infections is the most common cause of infection in the dialysis population. Lower scores of QOL are associated with higher risk of death and hospitalization in those on dialysis. The kidney disease quality of life (KDQOL<sup>TM</sup>-36) instrument is a self – report measure developed for individuals with kidney disease an on dialysis.

## MATERIALS & METHODS

**Study design:** A prospective randomized interventional is conducted over a period of 6 months in the nephrology department of KIMS ALSHIFA Hospital. The participants of the study were selected from the haemodialysis unit of the hospital.

**Study subject:** The study was conducted among 385 hemodialysis patient with confidence level of 95% with a margin of error  $\pm 5\%$ . The sample size was calculated using, Cochran Formula

The Inclusion Criteria was:

- Hemodialysis patient who are aged 18 years or above of either sex
- Patient who are ready to complete KDQOL<sup>TM</sup>- 36 questionnaire
- Patient who are admitted or to whom hemodialysis is performed in outpatient setting

The Exclusion Criteria was:

- Patient who are not able to complete KDQOL<sup>TM</sup> – 36 questionnaires due to cognitive impairment, dementia, active psychosis.
- Patient who refused to complete KDQO<sup>TM</sup>-36 questionnaire.
- Patient for whom there is no native language translator.
- Patient who has voluntarily withdrawn from counselling.
- Patient who has malignant tumor, major hearing impairment, undergone any organ transplantation.

## Study method & study material:

The data was collected from the patient or their caregivers directly after explaining the details of the study. A native language consent form is given to the participants. A well-planned data collection form is documented for obtaining patient demographic and other information after that a standard questionnaire was used to assess the quality of life. Any possible infection is assessed using laboratory parameters such as BUN,TLC,DLC etc during pre and post hemodialysis. KDQOL<sup>TM</sup> -36 scale was used based on background information provided by the patient. A proper patient counseling regarding the hygiene practice, fluid and dietary restriction to be followed by the patient is explained by proper patient counseling. A Patient Information Leaflet (PIL) is given in their native language it explains the same. Upon further follow-up the standard questionnaire is again used to assess the progress in their quality of life. During the next follow up i.e., after four weeks the KDQOL<sup>TM</sup> -36 questionnaire is reassessed for the assessing the QOL. By comparing the score values of patients before and after counseling thus assessment was done using statistical data. In order to make the counseling session effective patient information leaflet were prepared in both English and Malayalam and distributed among the participants



which describes about the information regarding haemodialysis, assess site, dietary habits, importance of fluid restrictions, possible chance of infections, safety concerns to be practiced in the haemodialysis setting.

Sources of Data used are:

- Direct patient interaction
- Patient case record
- Direct interaction with bystanders
- Direct interviewing the patient using KDQOLTM-36 questionnaire.

Statistical method:

The collected data were compiled using Microsoft excel and were presented in tables. The data were analysed using Statistical Package for Social Sciences (SPSS) software. Descriptive statistics was used to assess the mean and standard deviation for patient demographics. The analytical statistics were performed using chi square analysis, paired sample t test and frequency distributions. The chi square was used to find out whether there is any association between age, gender, marital status and educational level with QOL. For the comparison of QOL before and after counseling paired t test was used. The statistical significance of the study was assessed at 5% level of significance.

## **RESULT AND DISCUSSION**

Out of the 385 participants, the gender wise distribution was as follows, majority of the patients (64.2%) 247 were male and the remaining (35.8%) 138 were female. About 86 (22.3%) participated in the study belongs to the age group 30-40 which accounts for the majority of the study population. 79 (20.5%) belongs to 51-60, 76 (19.7%) belongs to 41-50, 72 (18.7%) belongs to 61-70, 38 (9.9%) belongs to <30 age group and the remaining 34 (8.8%) belongs to >70 age group. It is observed that, majority of the subjects in our study, 361 (93.8%) does not have a family history of kidney problems, while 24 (6.2%) have the family history of kidney problems. According to the data, 285 (74%) has hypertension, 186 (48.3%)

of the population has diabetes 119 (30.9%) has IHD, 134 (34.8 %) has cardiovascular, 63(16.4%) has hyperlipidaemia, 31 (8.1%) has thyroid issue, and 7 (1.8%) has other disorders as comorbidities

### **Site of Vascular Access:**

The majority of patients, 347 (90.1%) had an AV Fistula, 16(4.2%) had a Permcath, 11(2.9%) had a Femoral Catheter, and the remaining 10(2.6%) had a Jugular/Subcl (Supraclavicular Subclavian) Catheter. From our data it is understood that majority of the patient had AV fistula as that choice of vascular assess. It is preferred because it usually last longer and has fewer problems like clotting and infections.

Majority (63.1% n= 243) of the subjects were suffering from renal failure for 1 to 5 years, 89 (23.1%) were suffering for less than 1 year, 44 (11.4%) were suffering for 6 to 10 years, 3 (0.8%) were suffering for greater than 15 years and 2 (0.5%) suffering for 11 to 15 years.

The approach of alternative therapy use was found among the subjects before initiation of haemodialysis. About 13(3.4%) had found to use the Ayurvedic treatment regimen before the commencement of haemodialysis. The majority of patients 214 (55.6%) did Haemodialysis three times a week, 160 (41.6%) did it twice a week, and the remaining 11 (2.9%) did it on alternate days. Depending on the stage of kidney failure frequency of dialysis varies upon subjects. Among the social history, Alcohol consumption can cause changes in function of kidney and make the less able to filter the blood. However, there is no direct correlation. Smoking can affect medicine used to treat high blood pressure in ESRD patients. Uncontrolled high blood pressure is a leading cause of kidney disease. Smoking slows the blood flow to kidneys thereby making the disease worse. Tobacco usage is found to increase risk of proteinuria, albuminuria which are early indicators for progressive kidney damage and independently associated with increase in serum creatinine. The

social determinants of health are community and social context, economic stability, education, food, neighbourhood and physical environment which can contribute the incidence of disease. There are many problems and complications encountered by patients during haemodialysis. Proper monitoring during pre, during and post haemodialysis to prevent, detect and treat complications. Continuous monitoring and early detection can reduce and may even prevent problems and complications. The most common complication is access site bleeding which can occur during or post haemodialysis, followed by hypotension due to fluctuation in weight, taking antihypertensive pill before dialysis, septicaemia and heart disease. The muscle cramp is also experienced by the patient upon interviewing the subjects, it was found that majority of them are not working after the incidence of the disease. Only a few are able to continue with their normal life as that of pre disease era.

- Women who were home makers was not able to continue with their old life style, they need physical assistance or care givers to do basic daily task, house hold chores other activities.
- The subjects who were working was found to quit their job after the onset of disease due to the physical burden caused by the disease.
- Students were unable to complete their studies due to the physical and mental burden of the disease, routine dialysis, weaker immunity and poor health.

Overall, we can reach to a conclusion that the onset of disease had made a negative impact on the subjects.

## ASSESSMENT OF INFECTIONS ON THE SUBJECTS

The possibility of infections was seen among 30 inpatients who were undergoing haemodialysis. The higher level of laboratory parameters such as Blood Urea Nitrogen, TLC, DLC, and ESR indicates a probable chance of infection among the subjects. Due to the limited laboratory evidence only, the inpatients were been able to assess for their chance of infections. The elevation in laboratory values maybe an indication of infection or other inflammation/disease condition.

## EFFECT OF COUNSELLING ON QUALITY OF LIVING

A significant difference in Quality of life (QOL) before and after patient counselling ( $P < 0.01$ ) was seen among the subjects. Before counselling the QOL was  $66.89 \pm 7.12$  and after the counselling it significantly increased to  $71.55 \pm 8.88$ . It indicates the positive impact of our intervention on subjects.

QOL	Mean	N	Std. Deviation	P value
Before counselling	66.89	385	7.12	0.000
After counselling	71.55	385	8.88	

**Table 1: Effect Of Counselling On Quality Of Life using KDQOL™-36**

Patient counselling service promote safe and effective use of medications and promote a better care for patient. Awareness on patient on their medication, hygiene practices, diet through patient counselling was found to very effective in improving QOL in haemodialysis patients.

## VARIABLES AFFECTING QUALITY OF LIFE

Demographic Factor	Components	Chi-Square Value	P-value
Age	PCS	42.330	0.875
	MCS	50.954	0.593
	BKD	62.386	0.391
	SPKD	65.487	0.843
	EKD	42.861	0.683
Gender	PCS	4.473	0.878



	MCS	6.064	0.734
	BKD	7.889	0.640
	SPKD	10.959	0.614
	EKD	7.907	0.443
<b>Marital Status</b>	PCS	13.324	0.987
	MCS	15.843	0.959
	BKD	20.270	0.909
	SPKD	26.177	0.942
	EKD	23.342	0.500
<b>Educational level</b>	PCS	31.329	0.690
	MCS	29.920	0.752
	BKD	36.718	0.619
	SPKD	37.120	0.941
	EKD	37.378	0.236

**Table 2: Variables affecting quality of life**

To access whether the subject dependant variables like Age, gender, marital status and educational level, may affect the QOL, Chi-square test was used, it was found that none of these components show significant association. As all of the values had shown  $P > 0.05$  CKD can affect any age group irrespective of their gender and other social and economic status.

It was observed that the burden of kidney disease had an association with age, as age progresses the

burden also increases in subjects. The QOL scores of patients who are married were higher compare to the unmarried. The effect of kidney disease had an association with marital status as it gives a physical mental and emotional support to the patient. The level of education had an association with the effect of kidney disease (EKD), as they are more able to understand about their condition and the precaution to be undertaken.

### **COMPARISON OF QOL BEFORE AND AFTER COUNSELLING (PAIRED-T TEST)**

COMPONENTS		Mean	N	Std. Deviation	P value
<b>PHYSICAL COMPONENT SCORE(PCS)</b>	Before	14.84	385	2.47	0.065
	After	15.08	385	1.85	
<b>MENTAL COMPONENT SCORE(MCS)</b>	Before	11.94	385	2.67	0.000
	After	14.65	385	2.19	
<b>BURDEN OF KIDNEY DISEASE(BKD)</b>	Before	8.30	385	2.32	0.004
	After	10.61	385	3.45	
<b>SYMPTOMS AND PROBLEM OF KIDNEY DISEASE (SPKD)</b>	Before	9.03	385	3.21	0.000
	After	8.28	385	4.99	
<b>EFFECT OF KIDNEY DISEASE(EKD)</b>	Before	23.13	385	2.11	0.000
	After	24.43	385	4.32	

**Table 3: Comparison of QOL before and after counseling**

Patient Counselling focusing on dialysis compliance, hygiene, diet and medications was an effective way to improve health-related QOL and

awareness in ESRD. On accessing the Physical Component Score (PCS), Paired t test showed that there is no significant difference observed in

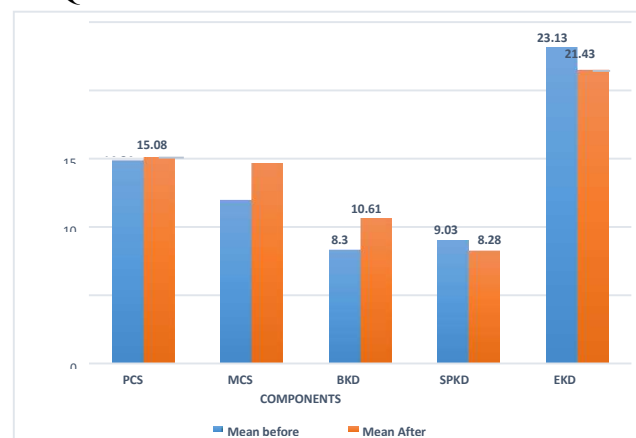
Physical Component Score (PCS) before and after counselling ( $P > 0.05$ ). As the physical burden caused by the disease is an individual effect that cannot be surmounted by counselling.

A significant difference in Mental component score (MCS) before and after counselling ( $P < 0.01$ ) was found. Before counselling, the mental component score was  $14.84 \pm 2.47$  and after the counselling it significantly increased to  $15.08 \pm 1.85$ . Individuals with ESRD will encounter many physical and psychosocial stressors that are related to both illness and life sustaining treatments. This will require major lifestyle changes which will eventually causes psychological changes, neurological disturbances and biochemical imbalances.

Significant difference in the Burden of kidney disease (BKD) score was seen before and after counselling ( $P < 0.01$ ). ESRD patient usually will be on complex drug regimen with about 8 to 10 medications daily. The factors such as Polypharmacy, medically unstable nature of disease, restricted lifestyle, and adjustments for sodium, potassium, calcium, pH and serum levels turns out to be critical factors that affects the burden of disease among them. The lack of time by physician and nurses for detailing the doubts and condition of patient gives rooms for provision for patient counselling.

Significant difference in Symptoms and Problem of Kidney Disease (SPKD) before and after counselling ( $P < 0.01$ ) was observed. Patients with CKD has common and severe symptoms like cramps, itchy skin, dry skin, fatigue, SOB, numbness, lack of appetite, which can reduce QOL thus causes greater chances for hospitalisation. The exact symptoms burden depends on the stage of disease and how it is being treated. Symptom burden has a negative impact on QOL. Thus, efficient patient counselling will improve this impact on patients

Also, a significant difference was observed in Effect of kidney disease (EKD) before and after counselling ( $P < 0.01$ ). The subjective assessment provides a greater insight into the patient's response to the life style changes that had occur due to the disease, social environment, sexual-desires. Upon counselling the patients overall view towards the disease was altered which indicates a positive impact of counselling to improve HRQOL.



**Figure 1: Diagrammatic representation of comparison of QOL before and after counseling**

## DISCUSSION

The present study focuses on the impact of individualized counselling on HRQOL which is vital among the ESRD patients. We had use KDQOLTM-36 questionnaire for determine the QOL of the study population. Our choice of KDQOLTM 36 questionnaire was based on the need to obtain the effect of kidney disease on physical functioning, mental functioning, burden caused by the kidney disease, symptoms and problems caused by the kidney disease, and effect of kidney disease on day-to-day life. The percentage distribution of male patient is 64.2% and that of female is 35.8%. percentage of distribution of patient's age is more on age category who are between 30-40 years. About 22.3% of total subject fall into this category followed by 51-60-year age group The most common causes of renal failure are Hypertension, DM which is highly prevalent in modern era. The

mean age of our study was 49.7 with standard deviation (SD) of 15.3. In addition, the result of the study had demonstrated that participants of higher education have better quality of life, possibly because education allow for a deep understanding of the disease and compliance to the treatment regimen, which can ultimately reflect on higher income and consequently and ability to acquire better treatment options. Our study had shown that about 35.3% of the subjects had the education qualification above higher secondary. Kerala being a 97% literate state validates the above statement. This result may show variation according to the geographic locations. The observations of a study indicate that there was a lower prevalence of kidney disease based on family history only 6.2% of the subjects exhibits a positive relationship. On contrary there is a high prevalence of CKD and its risk factor among family members. The evidence is supported by the result carried out by Rumezka Kazanciogiu on nephrology department of Vakif University Turkey, 2015. Hence it is advised to screen high risk family members of dose with CKD in an attempt to prevent kidney disease. CKD patients are prone to morbidities like Hypertension, DM, Ischemic Heart Disease, hyperlipidaemia, cardiovascular diseases etc. The subjects in our study had a greater prevalence of hypertension, about 74% of the population have the complication of low or high blood pressure which is commonly seen in haemodialysis patients. This finding is accordant with study conducted by M. Manavalan etal, in the department of nephrology in JIPMER in India, 2022. It was seen that more than 90% of the patients experience hypertension followed by diabetes which is also a major complication faced by the patients. The similar result was also evident in our study.

According to our study about 90% of the subject was have an AV fistula as their preferred blood access site. The AV fistulas is considered to be the

best choice as it provides good blood flow for dialysis and there by the effectiveness is increased and the treatment time is reduced. The risk of clotting or infection is significantly lower than other vascular accesses. As our study had major OP subject the AV fistula is most often preferred among them. They are generally less expensive to maintain AV graft or venous catheters. Thus, the impact of blood access site will only have a lower significant effect on QOL of the subjects. A similar result is observed by Javedh sheriff etal conducted to understand the impact of counselling on haemodialysis patient. 2016

In addition, our study demonstrated the duration of renal failure of our subjects, it was observed that around 63.1% had renal failure for about 1 to 5 years. The average life expectancy of an individual undergoing haemodialysis is 5 to 10 years. As the duration of haemodialysis increases the physical limitations, disease burden, disease effect on life, physical pain, and emotional health also worsens, social support, social functioning, sexual function, occupational status general health, and energy which eventually affects the QOL. A similar result was observed by study conducted Hengamech Barzegar etal 2015 on Chronic Kidney patients on Iran shows that around 57% of the subjects was having kidney disease for about 5 years. On contrary from our study we could also conclude that for some patients as a duration of kidney failure increases they became more adjusted with their current state of living, there by the QOL value shows a positive deviation.

The usage of Complementary and Alternative Medicines (CAM) such as herbal, dietary supplements, Ayurvedic Medications, Naturopathy, Unani, Homeopathy, Acupuncture etc. is much prevalent in south Indian population. CKD being an irreversible disease the above listed practices have lesser significance as mode of treatment. In our study majority (96.4%) of the subjects were relying on haemodialysis as first and



foremost method of treatment. By depending on CAM as the only method of treatment the disease burden will not drop, which eventually affects the QOL. A study conducted by Lavena Riya Castellino et al on South Indian population (2017) shows a prevalence of usage of alternative therapy by CKD patients which cannot downturn the effect of disease.

On our study more than half of the patients (55.6%) was undergoing haemodialysis thrice weekly. The rationale behind the thrice weekly dialysis seems to be uncertainty about dialysis adequacy, risk of malnutrition, anaemia and intra dialytic hypotension with twice weekly sessions. 3 sessions of dialysis weekly may improve patient survival however increasing the dose more than three per week shows no benefit. A similar conclusion is obtained by a study conducted Hossein Ebrahimi et al 2016 on hospital setting shows majority of the patients was undergoing dialysis three times a week.

On our study the social history of the patient was found to be a contributing factor towards the development of disease. The social habits such as alcohol consumption, smoking, tobacco, and other habits may contribute to the development of CKD. Regular alcohol consumption can cause changes in the function of kidney and thereby affecting the filtration of blood. However, there is no direct correlation with the onset of CKD. On our study majority of subjects did not consume alcohol, around 2% of subjects was found to be using alcohol even after undergoing haemodialysis. It may affect the fluid restriction imposed by the physician. It is advised to limit the fluid intake of haemodialysis patients to 32 ounces per day. Smoking significantly increases the risk of CKD among them. The patient undergoing haemodialysis, can have direct effect on Anti-hypertensive drugs, which ultimately reduces its potency. Concurrent smoking with CKD will eventually slows down blood flow to kidneys

thereby making the disease condition worse. On our study around 37.1 % of subjects was having history of smoking. Around 7% of subjects was still using it by limiting it to 2 cigarettes per day. The usage of tobacco is found to increase the risk of proteinuria albuminuria which are early indicators for progressive kidney damage. They have independent association with rise in serum creatinine.

Although haemodialysis being a lifesaving intervention. It can cause subjective complications. If the speed is too aggressive, individual doesn't adhere to proper dietary or fluid restrictions, change in haemostasis, change in biochemical balance may aid to the onset of complications. The major complications reported by our subjects is access site bleeding (48.3%) followed by change in BP (46.8%). A similar result was obtained from study conducted by Yoshihiko Nakagawa et al (2016) on haemodialysis patients of Japan shows around 64.2% of patients with AV fistula had experienced access site bleeding, which substantiate with our study. Hypo tension and hypertension is also seen as common occurrence on subjects because the dose and speed of the procedure can cause rapid removal of fluid from blood. HRQOL being a critically important outcome for patient with ESRD. On assessing the PCS, MCS, BKD, SPKD and EKD scores before and after counselling, we were able to make a difference on their mental characteristics (MCS) after counselling. As the MCS score involves patients emotional aspects towards the social environment. We were able to make alteration on the overall MCS aspects. We were able to decline the burden caused by the kidney disease (BKD) on our subjects. As the disease condition will affects their rapport with their family members which will eventually affects their emotional aspects by individualized patient counselling a significant change was made on BKD. As the patient counselling was aimed on hygiene practices,





precautionary measures, dietary modifications that the patient has made, it had helped them to diminish the symptoms and problems faced by the patients pre, during and post haemodialysis. Majority of the patients had itchy skin and dry skin as common problem due to unhygienic practices. This was able to be overcome by counselling. Thus, it was possible to reduce the SPKD scores. Therefore, the overall QOL was improved. The effect caused by the kidney disease on patients' life varies according to their age, gender, marital status, socioeconomic status, dietary restriction, the stage of disease etc. we were unable to fully recover this status on our subjects. Majority of the unmarried subjects were having doubtfulness about their marital life. Those who are married were not satisfied with their sexual life due to the burden caused by the kidney disease.

It was found that the dietary and fluid restriction imposed by the physician and dietician was not fully followed by the subject which can aid to worsen their condition. We were able to reach the conclusion that as a duration of kidney failure increases the hassleness caused by disease also increases. Therefore, the EKD score worsens. After proper counselling we were able to vaguely improve the EKD score. The study conducted by Dena E Cohen et al (2019) on haemodialysis patients to assess their QOL using KDQOL-36 TM questionnaire shows an improvement on their MCS, BKD, SPKD and EKD values. Thus, it shows that individualized patient counselling will help the patient to have a better adherence and improve the QOL. On the contrary a study conducted by Rasheeda.K.Hall et al (2018) on haemodialysis patients of United States, assessed using KDQOL-36 TM questionnaire shows a significant improvement on BKD on their 5th follow-up. The assessment of subscales had the potential to enhance the prognostication of survival and reduce future hospitalization.

## CONCLUSION

ESRD patients have poor HRQOL compared to general population and patients with other chronic disease. Poor HRQOL is associated with shorter survival. There is a limited threshold to which the regular dialysis and other parameters can improve the HRQOL. The currently available pharmacological and non-pharmacological treatments are only able to offer symptomatic relief for the patients. There is a major limitation of therapies to improve the physical, mental, and social wellbeing of these patients which can ultimately lead to the progression of HRQOL in these patients. The current study aims to assess the impact of pharmacist counselling on QOL, hygiene practices, dietary practices and other modifications that the hemodialysis patients should observe in their life. During the final follow up it was observed that there is a significant improvement in the overall QOL in such patients. This implies that an individualized patient centered pharmacist education and counselling has led to a clinically significant improvement in the QOL of these hemodialysis patients. The study also suggests that periodic counselling and intervention by clinical pharmacist at regular intervals can improve the HRQOL and thereby improve the awareness and positive attitude towards the disease. The misconception regarding the disease is thereby eliminated and strict adherence to the dietary modification is properly evaluated thus improving the QOL of the patients. The advice regarding the hygiene practices that the patient has to follow pre, during and post hemodialysis will help to eliminate any possible chance of infection.

## Major Findings:

Measurement of patient reported outcome may provide an opportunity to improve the QOL of the patients. Patient counselling should be made mandatory by incorporating clinical pharmacist in the nephrology team to make the patient understand about the disease, lifestyle



modification and hygiene practices that they have to follow. Better helping hands from the health care providers can improve the QOL in such patients. Individualized patient counselling can be made mandatory during hemodialysis to make the patient to have a positive attitude towards disease and life. There by can prolong the survival in such patients. This patient counselling should be made on regular follow up there by enhancing the patient adherence to the recommendation made by the physicians. The hygiene practices should be made to strictly follow by the patient to eliminate any possible infection. Moreover, such type of study should be conducted in different setting throughout the country to generalize the result and make strict amendments while the patient undergoes hemodialysis.

#### **Future Scope of the Study:**

The study had paved a new role of intervention for the clinical pharmacist, to provide individualized patient counselling to the patients who are undergoing hemodialysis. This can have a positive impact on the patients, thereby the burden of physicians, nurses can be reduced. This can also assist the patients on clearing their doubts regarding the disease, drugs, life style modifications, dietary modifications, and other precaution to be followed. Therefore appointing a clinical pharmacist in the dialysis unit in every hospital can aid in patient survival. This practice must be followed globally for a better Quality of life of dialysis patients.

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