Research Journal of Pharmaceutical, Biological and Chemical Sciences

The Prospective Study on Quality of Life with Assessment of Heamoglobin Levels in Chronic Kidney Disease Patients.

Maheshwari P*, Usha K, Sarumathy S, and Ravichandiran V.

Department of Pharmacy practice, School of Pharmaceutical sciences, Vels University, Chennai-600117, Tamil Nadu, India.

ABSTRACT

The main aim of the study is to determine the quality of life with the assessment of haemoglobin levels in the chronic kidney disease patients. To assess the quality of life in patients with chronic kidney disease. This study which includes prospective interventional monitoring of ckd patients undergoing the dialysis were carried out for a period of 6 months on both in-patient and out-patients. Anova was used to examine the relationship between Quality of life scores and Heamoglobin level. A total of 178 patients were screened.126 (71%) were males and 52 (29%) were females. In the age of 41-50 years 48(27%). In the age of 20-30 years 15(8%), 31-40 years 41(23%), 41-50 years 48(27%). 51-60 years 44(25%). 61-70 years 27(15%), 71-80 years 3(2%) were found. In this family history of CKD 26(15%), no family history of CKD 152(85%), were found. In this causes don't know 6(4%), DM 12(7%), HTN with DM 10(6%), HTN 123(69%), polycyst 6(4%), pain killer 20(11%) were found. hemodialysis 176(99%), peritoneal dialysis 2(1%). were found. In this 13(7%) of patients has sexual activity, 165(93%) of patients has not sexual activity were found. In this study due to erythropoietin administration in CKD patients hemoglobin levels has increased which shows improvement in the quality of life. Improved physical and mental status of the patients signifies the changes in their life which can helpful in prolonging their life span.
Keywords: CKD, dialysis, KDQofL, QofL, Erythropoietin

*Corresponding author

INTRODUCTION

Renal failure, also known as kidney failure or renal insufficiency. Renal failure can be divided into two categories: 1. Acute kidney injury 2. Chronic kidney disease 3. Acute-On-Chronic Renal Failure [1]. The main cause of CKD is HTN and DM [2]. The symptoms of worsening kidney function are not specific, and might include feeling generally unwell and experiencing a reduced appetite. This disease may also be identified when it leads to one of its recognized complications, such as cardiovascular disease, anaemia, or pericarditis [1].

Correction of anaemia in chronic kidney disease: Anaemia is an important manifestation of renal disease and is associated with increased morbidity and mortality The symptoms of worsening kidney function are not specific, and might include feeling generally unwell and experiencing a reduced appetite and reduced quality of life. Generally, anaemia management in patients with chronic kidney disease (CKD) can be divided into two phases. In the correction phase, patients diagnosed with anaemia who have not previously received treatment begin therapy with drugs which stimulate red blood cell production. Such treatment is referred to as 'de novo'. The correction-phase of anaemia treatment can be initiated irrespective of the patient's disease (CKD) status with the aim of bringing the patient's haemoglobin (Hb) level into the target range recommended in expert guidelines and then maintaining it within this range. Once stabilised, the 'maintenance' phase of treatment can begin [3-5].

Anemia Correction Goals.(1) Evidence based expert guidelines recommend that Hb levels should be assessed in any patient with CKD regardless of the stage of CKD or the patient's age, race, gender or existence or not of various co-morbidities (KDOQI, EBPG). (2) Treatment guidelines regarding the use of drugs which stimulate red blood cell production advise that Hb levels are corrected to and maintained within a specific range of 11 g/dL to 13 g/dL. In the US, the guidelines caution when intentionally maintaining haemoglobin>13 g/dl (KDOQI/EBPG). Depending on the products and the countries, the approved Hb target range may vary. (3)Guidelines recommend that Hb levels should be corrected within 4 months (EBGP). (4)European Best practice Guidelines (EBPG) recommends an Hb increase of 1-2 g/dL per month with Hb levels monitored every 2-4 weeks during the correction phase. (5)When correcting Hb levels in CKD patients, going above the maximum target range may also result in unnecessary drug use and associated costs. (6)The highest rates of hospitalization and mortality have been observed in patients in whom haemoglobin levels remain below 11 g/dL. Therefore, once the haemoglobin level has been corrected, it is recommended by current guidelines that Hb levels be maintained within the target range [6-8].

Stages [1]

CKD Stage	QUALITATIVE DESCRIPTION	GFR level (mL/min/1.73 m^2)
Stage 1	Kidney damage- normal GFR	≥ 90
Stage 2	Kidney damage- mild decreased GFR	60 – 89
Stage 3	Moderate decreased GFR	30 – 59
Stage 4	severe decreased GFR	15 – 29
Stage 5	End – stage renal disease	< 15

Risk Factors

A family history of kidney disease, Age - chronic kidney disease is much more common among people over 60 years of age, Atherosclerosis, Bladder obstruction, Chronic glomerulonephritis, Congenital kidney disease, Diabetes, Hypertension, Overexposure to some toxins, Sickle cell disease, Some medications.

Treatment

There is no cure for CKD. The four goals of therapy are to 1. Slow the progression of disease. 2. Treat underlying causes and contributing factors. 3. Treat complications of disease. 4. Replace lost kidney function. Strategies for slowing progression and treating conditions underlying chronic kidney disease include the following: Control of blood glucose, Control of high blood pressure, Diet. Types of dialysis i) haemodialysis ii) peritoneal dialysis.

MATERIALS AND METHODS

This study was designed to be a prospective interventional study carried over a period of 6 months. The present study was conducted in General Medicine and dialysis Department of a Tertiary Care Hospital, was carried out in ESI Hospital, Ayanavaram. & Tanker Foundation, C/O Rotary Hospital Ambattur industrial estate, Ambattur. The hospital is having capacity of 1200 beds for in-patient hospitalization along with supported qualified staff. The hospital is well equipped, and service provided to patients including all the biochemical, clinical pathology and microbiology investigations facilities are available. Expert guidance of clinical pharmacy professionals, senior and junior physicians of the departments selected for the study in the hospital. It was permitted to utilize the hospital facilities to make a follow-up prescription, in the selected departments. Patients were intimated about use of patient records, and all the health care professional were also informed about the project work.

All patients who agreed to participate in the study and were medically stable were asked to complete the Kidney Disease Quality of Life Short Form Questionnaire (KDQofL-SF), a self-administered survey of consisting of 79 items. This questionnaire, which measures a variety of health-related quality of life domains, has been widely used in the assessment of patients with kidney disease [9] . The questionnaire includes 36 generic items (the SF-36) and an additional 43 kidneydisease-specific questions. The domains measured by the SF-36 include physical domains [physical functioning, role limitations due to physical health (role-physical), general health perceptions, pain] and mental domains [energy/fatigue (vitality), social functioning, emotional well-being (mental health), role limitations due to emotional problems]. The domains targeted specifically for patients with kidney disease (on the basis of the 43 kidney-disease-specific questions) include work status, quality of social interactions, burden of kidney disease, social support, cognitive function, sexual function, sleep, effects of kidney disease (overall health), and symptoms/problem list [10].

In this study all the data were recorded in proforma which includes the information's regarding patients detail patients detail such as name, age, sex, height, weight, IP number, social history, past medical and medication history,family history, laboratory investigations, and medication of CKD patients. CKD outpatients admitted or dialysis involved for the study and in the total study duration of six months, first 2 months hemoglobin level, Blood Urea Nitrogen, Serum Creatine, Packed Cell Volume, Glomerular Filtration Rate were documented questionnaire was administered followed by counselling. Next 2 months only hemoglobin levels were checked. Final 2 months hemoglobin levels were checked and the questionnaire was readministered to the same subjects. Hemoglobin levels and Quality of life in CKD patients was found to be improved during the last visit.

RESULTS AND DISCUSSION

A total number of 185 patients have been selected, out of which only 178 patients were included in the study based on inclusion and exclusion criteria. From the total of 178 patients, 3 patients expired, 5 patients planned to undergo kidney transplantation and 8 patients had done kidney transplantation but has failed. At the beginning of our study, first month reading was taken as the initial value and 6th month value was taken as the final value.

Out of the selected patients, 20-30 years 15(8%), 31-40 years 41(23%), 41-50 years 48(27%), 51-60 years 44(25%), 61-70 years 27(15%), 71-80 years 3(2%) were found. According this data, 41-50yr age group of patients was mostly affected by CKD.

In this, 126 (71%) were males and 52 (29%) were females. According to personal habits in men smoking 21 (12%), alcoholic 16(9%), both smoking and alcoholic 24(13%), no social habits 117(66%) were found. According to marital status and occupation married 129(72%), unmarried 23(13%), divorced 26 (15%) were found. Patients qualifications this 8th grade or less 115(65%), some high school or less 16(8%), High school diploma 6 (3%), College degree 61(34%) were found. In this no occupation 113 (63%), working full time 8(5%), working part time 57(32%) were found.

According to family history in this family history of CKD 26(15%), no family history of CKD 152(85%), were found. And causes wise distribution in this causes don't know 6(4%), DM 12(7%), HTN, DM 10(6%), HTN 123(69%), polycyst 6(4%), pain killer 20(11%) were found.

Diagnosis wise distribution in this CKD 14(8%), CKD, HTN 127(71%), CKD, DM 3(2%), CKD, HTN, DM 26(15%), CKD, Hypohyroidism 8(4%), were found. Types wise distribution In this hemodialysis 176(99%), peritoneal dialysis 2(1%) were found. According to duration less than 1year 18(10%), 1-5years 118(66%), 6-10 years 36(20%), 11-15years 6(4%) were found.

In this OTC drug used patients was 6(3%), not used OTC drug patients was 174(97%) and Commonly used OTC is Paracetamol 625 mg and diclofenac sodium 50mg. In this 50(11%) of patients has taken nifedipine, 56(13%) of patients has taken amlodipine, 41(9%) of patients has taken sodium bicarbonate, 142(32%) of patients has taken calcium carbonate, 41(9%) of patients has taken prazosin, 39(9%) of patients has taken clonidine, 17(4%) of patients has taken lasix, 13(3%) of patients has taken carvedilol, 9(2%) of patients has taken metoprolol, 13(3%) of patients has not taken any medicine were found.

In this 13(7%) of patients has sexual activity, 165(93%) of patients has not sexual activity were found. 27(15%) of patients health was very good, 117(64%) of patients health was good, 28(16%) of patients health was fair, 9(5%) of patients health was poor were found. compared to one year ago wise distribution In this 14(8%) of patients Much better now than one year ago, 108(61%) of patients Somewhat better now than one year ago, 35(19%) of patients About the same as one year ago, 16(9%) of patients Somewhat worse now than one year ago, 5(3%) of patients Much worse now than now year ago were found.

Average scoring wise distribution Review 1 In this average scoring of PCS 35 (19%), MCS 45(25%), burden of kidney disease 9(19%), symptom/problem list 60(33%), effect of kidney disease 34(18%) were found.

Average scoring wise distribution review 2 In this average scoring of PCS 72(22%), MCS 89(27%), burden of kidney disease 6(2%), symptom/problem list 83(26%), effect of kidney disease 74(23%) were found.

Table 1: Age Wise Distribution (N=178)

AGE IN YEARS	NO. OF PATIENTS (n=178)	% OF PATIENTS
20 – 30	15	8.4
31 – 40	41	23
41 – 50	48	27
51 – 60	44	25
61 – 70	27	15.1
71 – 80	3	2
TOTAL	178	100

Table 2: Gender Wise Distribution (N=178)

GENDER	NO. OF PATIENTS (n=178)	% OF PATIENTS
MALE	126	71
FEMALE	52	29
TOTAL	178	100

Table 3: Social Habit Wise Distribution (N=178)

SOCIAL HABIT	NO. OF PATIENTS	% OF PATIENTS
SMOKER	21	12
ALCOHOLIC	16	9
BOTH	24	13.4
NONE	117	66
TOTAL	178	100

Table 4: Marital Status Wise Distribution (N=178)

MARITAL STATUS	NO. OF PATIENTS (n=178)	% OF PATIENTS
MARRIED	129	72.4
UNMARRIED	23	13
DIVORCED	26	15
TOTAL	178	100

Table 5: Qualification Wise Distribution (N=178)

QUALIFICATION	NO. OF PATIENTS (n=178)	% OF PATIENTS
8th GRADE OR LESS	115	65%
SOME HIGH SCHOOL OR LESS	16	8%
HIGH SCHOOL DIPLOMA	6	3%
COLLEGE DEGREE	61	34%
TOTAL	178	100%

Table 6: Occupation Wise Distribution (N=178)

OCCUPATION	NO. OF PATIENTS	% OF PATIENTS
NO OCCUPATION	113	63.4
WORKING FULL TIME	8	5
WORKING PART TIME	57	32
TOTAL	178	100

Table 7: Family History Wise Distribution (N=178)

FAMILY HISTORY	NO. OF PATIENTS	% OF PATIENTS
FAMILY HISTORY	26	15
NO FAMILY HISTORY	152	85.3
TOTAL	178	100

Table 8: Causes Wise Distribution (N=178)

CAUSES	NO. OF PATIENTS	% OF PATIENTS
DON'T KNOW	6	4
DM	12	7
HTN,DM	10	6
HTN	123	69.1
POLYCYST	6	4
PAIN KILLER	20	11.2
TOTAL	178	100

Table 9: Diagnosis Wise Distribution (N=178)

DIAGNOSIS	NO. OF PATIENTS	% OF PATIENTS
CKD	14	8
CKD,HTN	127	71.3
CKD,DM	3	2
CKD,HTN,DM	26	15
CKD, HYPERTHYROIDISM	8	4
TOTAL	178	100

Table 10: Types Wise Distribution (N=178)

TYPES	NO. OF PATIENTS	% OF PATIENTS
HEMODIALYSIS	176	99
PERITONEAL DIALYSIS	2	1.1
TOTAL	178	100

Table 11: Duration Wise Distribution (N=178)

DURATION	NO. OF PATIENTS	% OF PATIENTS
LESS THEN 1 YEAR	18	10.1
1-5 YEAR	118	66.2
6-10 YEAR	36	20.2
11-15 YEAR	6	4
TOTAL NO. OF PATIENTS	178	100

Table 12: Otc Drug Wise Distribution (N=178)

DRUG	NO. OF PATIENTS	% OF PATIENTS
On OTC	6	3.4
Not on OTC	174	97
TOTAL	178	100

Table 13: Drug Wise Distribution (N=178)

DRUG	NO. OF PATIENTS	% OF PATIENTS
NIFEDIPINE	50	11
AMLODIPINE	56	13
SODIUM BICARBONATE	41	9
CALCIUM CARBONATE	142	32
PRAZOSIN	41	9
CLONIDINE	39	9
ATENOLOL	17	4
LASIX	21	5
CARVEDILOL	13	3
METOPROLOL	9	2
NONE	13	3
ERYTHROPOETIN	178	100

Table 14: Sexual Contact Wise Distribution (N=178)

SEXUAL CONTACT	NO. OF PATIENTS	% OF PATIENTS
YES	13	7
NO	165	93
TOTAL	178	100

Table 15: General Health Wise Distribution (N=178)

GENERAL HEALTH	NO. OF PATIENTS	% OF PATIENTS
VERY GOOD	27	15
GOOD	114	64
FAIR	28	16
POOR	9	5
TOTAL	178	100

Table 16: Compared To One Year Ago Wise Distribution (N=178)

COMPARED TO ONE YEAR AGO	NO. OF PATIENTS	% OF PATIENTS
MUCH BETTER	14	8
SOMEWHAT BETTER	108	61
ABOUT THE SAME	35	19
SOMEWHAT WORSE	16	9
MUCH WORSE	5	3
TOTAL	178	100

Table 17: Overall Kidney Average Scoring Review 1 (N=178)

SCORING	AVERAGE SCORING	%
PCS	35	19
MCS	45	25
BURDEN OF KIDNEY DISEASE	9	5
SYMPTOM/PROBLEM LIST	60	33
EFFECT OF KIDNEY DISEASE	34	18

Table 18: Overall Kidney Average Scoring Review 2 (N=178)

SCORING	AVERAGE SCORING	%
PCS	72	22
MCS	89	27
BURDEN OF KIDNEY DISEASE	6	2
SYMPTOM/PROBLEM LIST	83	26
EFFECT OF KIDNEY DISEASE	74	23
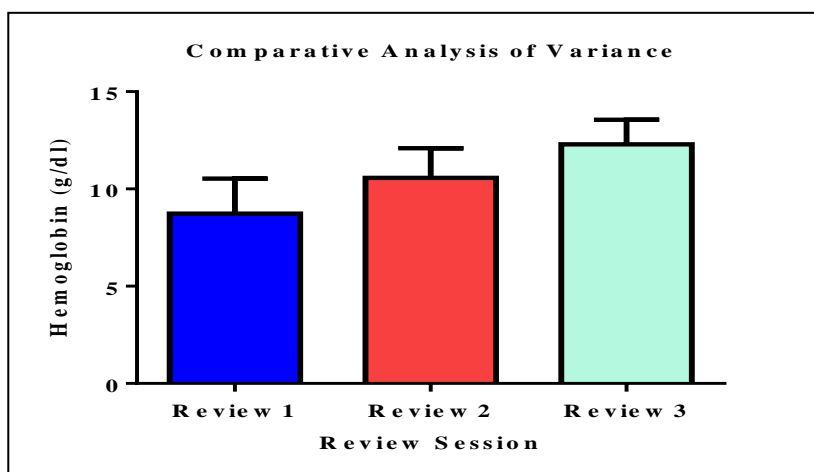
CONCLUSION

In this study due to erythropoietin administration in CKD patients hemoglobin levels has increased which shows improvement in the quality of life. Improved physical and mental status of the patients signifies the changes in their life which can helpful in prolonging their life span.

ABBREVIATIONS

CKD- chronic kidney disease
HTN-Hypertension
DM-Diabetes mellitus
KDQofL- Kidney disease Quality of life
QofL-Quality of life
KDOQI- kidney disease outcomes quality outcomes initiative
EBPG- European best practice guidelines
Hb- Heamoglobin
BUN-Blood Urea Nitrogen
SCr- Serum creatinine
PCV-Packed Cell Volume
GFR-Glomerular Filtration Rate
PCS-Physical component score
MCS-Mental component score

REFERENCES

[1] National Kidney Foundation (2002). "K/DOQI clinical practice guidelines for chronic kidney disease". Retrieved 2008-06-29.

[2]   GBD 2013 Mortality and Causes of Death, Collaborators (17 December 2014)."Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013.". Lancet 385 (9963): 117–171.

[3]   Clyne N. et al. Haemoglobin control with epoetin beta: results from the cardiovascular risk reduction by early anaemia treatment with epoetin beta (CREATE) and anemia correction in diabetes (ACORD) studies. Abstarct SP457. 2006. XLIII ERA-EDTA Congress.

[4]   Gilbertson D. et al. The effect of haemoglobin variability on hospitalization and mortality. Abstract SP458. 2006. XLIII ERA-EDTA Congress.

[5]   KDOQI Clinical Practice Guidelines and Clinical Practice Recommendations for Anemia in Chronic Kidney Disease. Am J Kidney Dis 47:S1-S146, 2006.

[6]   MacDougall I. et al. C.E.R.A. (Continuous Erythropoietin Receptor Activator) administered extended intervals corrects anaemia and maintains stable Hb levels in patients with CKD not on dialysis. Abstract BA 16738 2006.

[7]   Drueke TB, Locatelli F, Clyne N, Eckardt KU, Macdougall IC, Tsakiris D, Burger HU, Scherhag A. N Engl J Med 355: 2071–2084, 2006 Nov 16 2.

[8]   Singh AK, Szczech L, Tang KL, Barnhart H, Sapp S, Wolfson M, Reeddan D. N Engl J Med 355: 2085–2098, 2006

[9]   Korevaar JC, Merkus MP, Jansen MAM, Dekker FW, Boeschoten EW, Krediet RT. Qual Life Res 11: 437– 447, 2002 10.

[10]   Ware J, Kosinski M, Keller S: SF36 Physical and Mental Health summary scales. A User's Manual, 2nd Ed., Boston, The Health Institute, New England Medical Center, 1994 11.