



Clinical Profile and Quality of Life of Incident Hemodialysis Patients

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Received: 28 October 2022

Revised: 20 December 2022

Accepted: 05 January 2023

Published: 28 February 2023

Abstract

Hemodialysis is the most commonly used treatment modality for end stage renal disease. A 6 months observational study was conducted in the Dialysis unit of Kasturba Hospital, Manipal to study the clinical profile, quality of life with the help of KDQoL SF 36 questionnaire and factors affecting quality of life of hemodialysis patients. A total of 45 participants were included who initiated dialysis in the year 2018 and 2019 and were receiving dialysis in our hospital. Out of 45 participant 77.8% were males and 22.2% were females, the mean age was 55.29 (11.29) years. 23 patient-initiated dialysis in the year 2018 22 patients-initiated dialysis in the year 2019. The prevalence of hypertension, diabetes mellitus and cardiovascular diseases in this population were found to be 95.2%, 35.6% and 8.9% respectively. The mean scores of the sub scales were analyzed with the help of scoring manual and descriptive statistics. In the result it was found the hemoglobin, intradialytic weight gain were found to be positively correlated with the Physical component summary (PCS) and Mental component summary (MCS). Effects of kidney disease was found to be very strongly and positively correlated with dialysis vintage. In the result of the study due to its smaller population we cannot determine more factors which were affecting the Quality of life scores.

Keywords:- Hemodialysis (HD), chronic kidney disease (CKD), Quality of life (QoL), Intradialytic Weight Gain (IDWG), Hb, Physical component summary (PCS), Mental component summary (MCS), Effects of Kidney Disease (EKD), Burden of Kidney Disease (BKD), Symptoms Problems of Kidney Disease (SPKD).

INTRODUCTION

Hemodialysis is the most commonly used treatment modality for end stage renal disease. HD has been shown to be beneficial in extending life expectancy and enhancing

nutritional quality in ESRD patients' nutritional status.^[1,2] In the year 2018, the estimated patients receiving chronic dialysis in India were around 175,000 which gives a prevalence of 129 per a million people.^[3] Hemodialysis is a time profound therapy and demands restrictions on



diet and the fluids. Chronic dialysis results in the freedom loss, disturbed marital, social life and family, dependent of caregivers and loss or reduced of financial income.^[4,5,6]

Quality of life is defined as a state of full physical, emotional, social, and spiritual well-being that is influenced by sociodemographic factors, chronic diseases, and psychiatric and physical conditions. End-stage renal disease and therapies trigger plenty of issues in patients receiving hemodialysis.^[4]

As compare to the general population, patients on HD had much poorer HRQoL, which is the major cause of hospitalization and mortality.^[5]

Due to the accompanying impairment or enforced constraints in practically all domains of their daily lives, ESRD has a significant negative influence on patients' HRQoL.^[7]

Measures of HRQoL can give a predictive value on the survival of patients and hospitalizations.^[8] HRQoL mainly refers to social, physical and psychological components of health that are unique to each individual are referred to as HRQoL.^[2] Over the years, in some of the studies of assessment of HRQoL in various populations having ESRD, All the results disclose various sociodemographic, psychosocial factors, clinical that are linked with flawed HRQoL.^[10,11]

The kidney disease quality of life 36 subscale consist of disease specific (24 questions) and generic specific (12 questions) items (problems/symptoms, difficulty of kidney diseases and effects of kidney diseases, mental component score and physical component score).The patients are interviewed and the questionnaires are converted into 0-100 scores,

with higher scores indicating a higher quality of life.^[12]

Several of studies have been conducted in the other developed countries to evaluate the quality of life(QoL) of patients on hemodialysis and have identified multiple factors affecting their QoL. However, very few studies have been conducted till now to evaluate the QoL and factors affecting in Indian patients.^[13]

MATERIAL AND METHODS

Institutional research committee and Institution ethics committee approval was obtained prior to the study (IEC: 550/2020). In this observational study a total of 45 patients were included who were >18 years of age and initiated maintenance hemodialysis and continued in our center for 3 or more months. The information required for this record were collected from the medical records discharge summary. The patients' data which were recorded such as patients' age, gender, height, weight, BMI, comorbidities, dialysis vintage (months), e-GFR, serum creatinine at the time of dialysis initiation, dialysis access at the time of dialysis initiation, hemodialysis dialysis details like frequency of dialysis, complications during the dialysis, access failure history, and laboratory investigations to sough the clinical profile of the patients. For assessing the quality of life, the study have used KDQoL SF 36 questionnaire. KDQoL is a validated QoL instrument that combines the generic SF-36 instrument with a kidney disease specific. Generic SF 36 assess the Health-related quality of life score in two component summary i.e. Physical component summary and Mental component summary. Kidney disease specific instrument assess the burden of kidney disease

in 3 domains i.e. Symptoms/problems of kidney disease (SPKD), burden of kidney disease (BKD) and effects of kidney disease (EKD). These questionnaire interviewed on the day of dialysis with the patients. The scoring and precoding of the questionnaire done with the KDQoL scoring manual. The descriptive statistics were used to summarizing data. To determine the factors affecting the quality of life the Pearson's correlation was run to determine the correlation between the subscales and age, gender, Hb, intradialytic weight gain, dialysis vintage. All statistical analysis were performed with SPSS version 16.0.

RESULTS

A total of 45 patients who fulfilled the inclusion criteria were studied.

Demographics Details

In the study population mean age, height, weight, BMI and dialysis vintage was 55.29(11.26), 162.46 (7.03), 56.17 (12.85), 21.97 (3.47) and 24.91 (6.93) months. In this study population 82.2% received pre hemodialysis nephrology care, the mean \pm SD of e-GFR at first nephrology visit was 10.21 (3.95), smokers and non-smokers were 4.4% and 95.6% respectively.

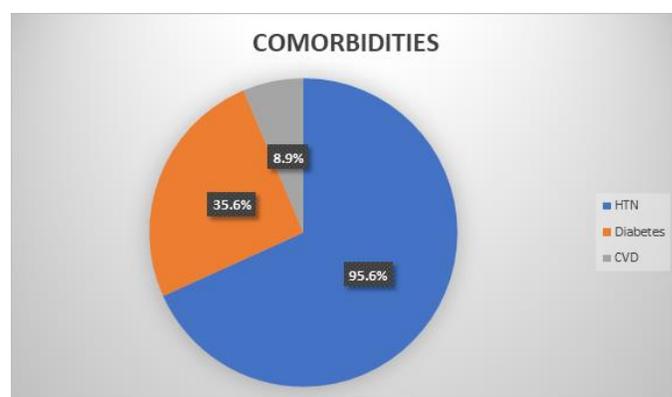


Table 1:

Gender: Males, n(%)	35	77.8%
Females, n(%)	10	22.2%
Age 18-30 years	2	4.4%
31-45 years	8	17.8%
46-55 years	8	17.8%
56-69 years	26	57.8%
>70 years n(%)	1	2.2%
Age, mean \pm SD	55.29	11.26
Height, mean \pm SD	162.46	7.03
Weight, mean \pm SD	56.17	12.85
BMI, mean \pm SD	21.97	3.47
Dialysis vintage(Months), mean \pm SD	24.91	(6.93)
.Pre-HD nephrology care given, n(%)	37	82.2%
e-GFR at 1st Nephrology visit, mean \pm SD	10.21	3.95
Smokers, n(%)	2	4.4%
Non-smokers, n(%)	43	95.6%
ACE/ARB, n(%)	5	11.1%
Statins, n(%)	5	11.1%
Antiplatelet agents, n(%)	8	17.8%



EPO, n(%)	11	24.4%
IV iron, n (%)	29	64.4% %

The prevalence of hypertension, diabetes and cardiovascular disease in the study population were found to be 95.2%, 35.6% and 8.9% respectively.

Hemodialysis details

In this study population (n=45), 23 patients-initiated dialysis in the year of 2018 and 22 patients-initiated dialysis in the year 2019. Serum creatinine in the starting of dialysis was mean (SD) 10.21(3.95). In the study population 68.9% of the patient-initiated dialysis with Internal jugular catheter, 22.2% had constructed AV fistula prior to the initiation of dialysis and 8.9% initiated dialysis with permcath.

80% of the patients were receiving twice a week dialysis and 20% were receiving thrice a week dialysis. The most commonly seen complication during dialysis in this study population was hypotension, vomiting and muscle cramps 71.1%, 13.3% and 44.4% respectively. Intradialytic weight gain in this population was mean \pm (SD) 2.99 (1.05).

The residual urine output in this study population reported to be nil, <100 mL and > 100 mL were 33.3%, 17.8% and 48.9% respectively.

In the study population the mean \pm (SD) of Hb, creatinine, calcium, phosphorus, albumin and urea were 9.7 (0.83), 7.81 (1.50), 8.75 (0.60), 5.18 (1.68), 4.2(0.36) and 103.75(25.62) respectively. In the study population only 1 participant was HIV positive.

Health Related Quality of Life Scores

	N	Mean	St. Deviation
Physical component summary	45	54.86	23.26
Mental component summary	45	55.16	20.84
Burden of kidney disease	45	34.31	17.25
Symptoms/Problem of kidney disease	45	71.06	17.29
Effects of kidney disease	45	53.65	21.03

Factors Affecting the QoL

Pearson correlation was run to assess the relationship between the QoL scores and variables (age, gender, dialysis vintage, Hb, IDWG).

Pearson correlation was run to determine the relationship between PCS and age, haemoglobin, IDWG and dialysis vintage. Very strong positive correlation was found between PCS and haemoglobin ($r^2=0.85$, $p=0.02$). Patient

with more haemoglobin had more PCS score. Apart from that no other parameter correlation was not so significant.

Strong correlation was found between MCS, IDWG and Hb. IDWG ($r^2= 0.96$, $p=0.005$), Hb($r^2=0.98$, $p=0.003$).

Effects of kidney disease (EKD) was found to be very strongly and positively correlated with dialysis vintage ($r^2=0.90$, $p=0.01$). This can be



said because of the less vintage the effects of kidney disease are also less.

Symptoms problem of kidney disease (SPKD) and Burden of kidney disease does not correlate with any factor.

DISCUSSION

There is very little data on HRQoL in Indian patients on hemodialysis; the majority of the data is limited to individuals with ESRD. This study assess the quality of life of hemodialysis patients, as we know the hemodialysis patients have impaired QoL as compared to general population, the influence of long -term illness and treatment on a patient's physical, mental, social activities should not be ignored. KDQoL SF36 scale has been used universally to evaluate patients' QoL. The mean age in our study was 55.29 (11.26) in that 2 patients were in the age group of 18-30 years, 8 patients were in the age group of 31-45 years, 8 patients were in the age group of 46-55 years, 26 patients were in the age group of 56-69 years and 1 patient was >70 years. The most affected age group was found to be above 55 years.

In this study the mean scores of component Physical Component Summary (PCS), Mental Component Summary (MCS), Burden of Kidney Disease (BKD), Symptoms and Problems of Kidney Disease (SPKD) and Effects of Kidney Disease were found to be 54.86, 55.16 34.31, 71.06 and 53.65. The MCS score were found to be higher than PCS scores in our patients, similar to the other studies in HD patients.^[14] Another finding in our study was lower burden of kidney disease than that reported by DOPPS.^[15] In one of the study from India, MCS was also observed to be higher than PCS, indicating a psychologic response to

chronic illness. Other than medical disorders, MCS and PCS can be influenced by a variety of conditions.^[16] It is found in other studies increasing age and lower levels of hemoglobin have been associated with poor PCS and Burden of Kidney disease scores. In our study the presence of comorbidities had no impact on the HRQoL. Even though 95.6% of the study population was hypertensive.

Female considered to have poor HRQoL.^[15] But we did not find significant difference in the composite scores by gender. Whereas intradialytic weight gain and hemoglobin strongly correlated with the MCS hemoglobin ($r^2=0.98$, $p= 0.003$) and IDWG ($r^2=0.96$, $p=0.007$).

The results of our study does not find more factors affecting the QoL scores. Even though we only find as association between certain parameters (Hb and IDWG) and HRQoL. The impact of parameters such as gender, age, residual urine output, calcium, phosphorus level could not be determined correctly because of the relatively small number of study population.

CONCLUSIONS

In the result of this study we cannot determine more factors which are affecting the QoL scores. Smaller population of this study can be a limitation. The study needs to include all the hemodialysis population of the center to assess their HRQoL as this study only included 2018 and 2019 patients who initiated and continued dialysis in our center.

Also understanding the sociocultural environment of the hemodialysis patient is extremely important for the effective delivery of



health care. It would be easier to develop individualized treatment methods if we had a better understanding of HRQoL and its factors.

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Source of Support: Nil, Conflict of Interest: None declare