



IMPACT OF HEMODIALYSIS ON HEALTH-RELATED QUALITY OF LIFE OF THE PATIENT

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ABSTRACT

Hemodialysis is a procedure used to clean the blood of people whose kidneys are not functioning properly. Duration of dialysis is 4-6 hours, twice or thrice a week. Hemodialysis cleans the kidneys of waste products including urea and creatinine along with free water extracorporeal, which slows the progression of kidney failure. The observational study included 80 patients who received hemodialysis.

Our study was conducted on 80 patients out of which were found to be males (61.25%) and were found to be females (38.75%). The majority of the patients there (28.75%) were between the ages of 51 and 60. Among 80 patients, complications were reported in 64 (80%) patients. Commonly reported complications were weakness, muscle cramps and fever. Out of 80 patients, 16 patients (20.0%) were having long-term hypertension and 12 patients (15%) were having both hypertension and diabetes as co-morbidity. Participants in our study reported that the above-mentioned problems significantly lower the life quality in terms of the health.

Keywords: Hemodialysis, GFR, serum creatinine.

1. INTRODUCTION

Chronic kidney disease is defined as kidney damage or a glomerular filtration rate (GFR) of less than 60 mL/min/1.73 m² for at least three months. Regardless of the underlying etiology, once the loss of nephrons and reduction in functional kidney mass reach a certain point, the remaining nephrons initiate an irreversible sclerosis process, leading to a progressive decrease in GFR [1, 2].

Treatment of chronic renal failure is divided into two stages: conservative management and renal replacement therapy. The most frequently given kidney replacement therapy is hemodialysis, followed by continuous ambulatory peritoneal dialysis [3-5].

Quality of life is an individual's perception of their position in life in the context of their culture, value system, and relationship to life goals, expectations, standards, and other related matters. Quality of life is an increasingly important factor in the assessment of the management of chronic kidney disease patients undergoing hemodialysis [6, 7].

Several studies have shown a decreased quality of life and increased depression in the hemodialysis patient population [8-10].

Poor quality of life itself is also reported to increase complications such as depression and malnutrition and even increase mortality [11]. Several factors such as anemia, age, duration of hemodialysis, number of comorbid diseases, and number of medications are known to be factors related to the quality of life of hemodialysis patients [12, 13].

Need for the study are the study's goal is to learn more about the needs of haemodialysis patients and the variables that affect those needs. The patient's life quality is negatively impacted by haemodialysis. When a patient is receiving haemodialysis, the medication dose needs to be changed. Research into the effects of haemodialysis, a type of replacement therapy used when the kidneys are unable to properly filter waste products from the blood, is necessary.

The main aim of our project is to evaluate impact of hemodialysis on Health-related quality of life of the patient. The objectives of study to assess patient sleeping patterns, to measuring the patient response to dialysis Therapy, to assess blood pressure and weight, to evaluate the patient's diet and the effect it has on their quality of life, to check whether daily activities of patients on dialysis are affected.

2. MATERIAL AND METHODOS

Study design was a prospective investigation using observation.

Source of data collection:

- A form for collecting patient data.
- A prescription or a patient's case note.
- Results of laboratory tests.
- The patient's drug history.

Inclusion criteria:

- All Age groups.
- Patients with confirmed diagnosis of CKD.
- Patients Guardian who can provide Informed Consent Form.

Exclusion criteria:

- Patients who are unconscious, not co-operative.
- Pregnant and Lactating women.

Sample period was 6 months (November- April), sample size was 80, study site was Gleneagles Global Aware Hospitals.

3. RESULTS

3.1. Gender wise distribution of patients

Out of 80 patients, 49 patients (61.25%) were found to be male and 31 patients (38.75%) were found to be females.

Table 1: Gender wise distribution of patients

Gender	Total	Percentage
Male	49	61.25%
Female	31	38.75%

3.2. Age wise distribution of patients

Eight patients, or 10% of the total, were under the age of 21 to 30. 12 patients (15%) fell within the 31-40 age range. 18 patients (22.50%) fell within the 41-50 age range. 23 patients (28.75%), 14 patients (17.50%), and 5 patients (6.25%) were patients between the ages of 51 to 60, 61 to 70, and 71 to 80.

Table 2: Age wise distribution of patients

Age	Total number of patients	Percentage
21-30	8	10%
31-40	12	15%
41-50	18	22.50%
51-60	23	28.75%
61-70	14	17.50%
71-80	5	6.25%

3.3. BMI wise distribution of patients

Out of 80 patients, 8 patients (10%) were categorized into underweight, 35 patients (43.75%) were categorized into normal, 34 patients (42.50%) were categorized into overweight, 5 patients (6.25%) were categorized into obese.

Table 3: BMI wise distribution of patients

BMI	Total number of patients	Percentage
Under weight	8	10%
Normal	35	43.75%
Over weight	34	42.50%
Obese	5	6.25%

3.4. Distribution of patients based on co-morbidities

Out of 80 patients, 2 (2.50%) patients had no co-morbidities, 4 patients (5%) were having diabetes mellitus, 16 patients (20.00%) were having hypertension, 12 patients (15%) were having both Diabetes mellitus and Hypertension, 0 patients were having no hypothyroidism, 44 patients (55.00%) were having other co-morbidities.

Table 4: Distribution of patients based on co-morbidities

Co-morbidities	Total	Percentage
Normal	2	2.50%
Diabetes mellitus	4	5%
Hypertension	17	21.25%
Diabetes mellitus + Hypertension	13	16.25%
Hypothyroidism	0	0%
Others	44	55.00%

3.5. Distribution of Co-Morbidities Based on Gender

Out of 49 male patients, 1 patient had no co-morbidities, 4 patients were having diabetes mellitus, 6 patients were having hypertension, 9 patients were having both Diabetes mellitus and Hypertension, 0 patients were having no hypothyroidism, 29 patients were having other co-morbidities.

Out of 31 females' patients, 1 patient had no co-morbidities, 0 patients were having diabetes mellitus, 10 patients were having hypertension, 4 patients were having both Diabetes mellitus and Hypertension, 0 patients were having no hypothyroidism, 15 patients were having other co-morbidities.

Table 5: Distribution of co-morbidities based on gender

Co-morbidities	Male	Female
Normal	1	1
Diabetes mellitus	4	0
Hypertension	6	11
Diabetes mellitus +Hypertension	9	4
Hypothyroidism	0	0
Others	29	15
Total	49	31

3.6. Distribution based on social history

Out of 80 patients, 5 patients (6.25%) were alcoholic, 75 patients (93.75%) were non-alcoholic.

Out of 80 patients, 3 patients (3.75%) were smokers, 77 patients (96.25%) were non- smokers.

Table 6: Distribution based on social history

Social history	Number of patients	Percentage
Alcoholic	5	6.25%
Non- alcoholic	75	93.75%
Smokers	3	3.75%
Non- smokers	77	96.25%

3.7. Distribution based on complications associated with dialysis

Out of 80 patients, 64 patients (80%) had complications and 16 patients (20%) had no complications.

Table 7: Distribution based on complications

Complications	Number of patients	Percentage
With complications	64	80%
Without complications	16	20%

3.8. Distribution based on common complications

Out of 80 patients, 18 patients (25.35%) were having muscle cramps, 4 patients (5.63%) were having chills, 7 patients (8.45%) were having headache, 1 patient (1.40%) was having hypertension, 11 patients (15.4%) were having hypotension, 12 patients (14.08%) were having fever, 21 patients (29.57%) were having weakness.

3.9. Distribution of patients based on association of complications of dialysis with age

Five patients (or 7.81%) out of the 80 total patients were under the age of 21. 10 patients (15.62%) fell within the 31-40 age range. 14 patients (21.87%) fell into the 41-50

age range, 19 patients (29.68%) fell within the 51-60 age range. 12 patients (or 18.75%) fell within the 61-70 age range. 6 patients (6.25%) fell into the 71-80 age range.

Table 8: Distribution based on common complications

Common complications	No. of patients	Percentage
Muscle cramps	18	25.35%
Chills	4	5.63%
Headache	7	8.45%
Hypertension	1	1.40%
Hypotension	11	15.49%
Fever	12	14.08%
Weakness	22	29.57%

Table 9: Distribution based on association of complications of dialysis with age

Age	Total number of patients	Percentage
21-30	5	7.81%
31-40	10	15.62%
41-50	14	21.87%
51-60	19	29.68%
61-70	12	18.75%
71-80	4	6.25%

3.10. Distribution of patients based on association of complications of dialysis with age (Muscle cramps)

One patient out of 80 (5.68%) was between the age of 21-30. 3 patients (17.64%) fell within the 31-40 age range, 3 patients (17.64%) fell within the 41-50 age range. 5 patients (29.94%) fell within the 51-60 age range. 3 patients (17.64%) fell within the 61-70 age range. 2 patients (11.76%) fell into the 71-80 age range.

Table 10: Distribution of patients based on association of complications of dialysis with age (Muscle cramps)

Age	No. of patients	Percentage
21-30	1	5.88%
31-40	3	17.64%
41-50	3	17.64%
51-60	5	29.94%
61-70	3	17.64%
71-80	2	11.76%

3.11. Distribution of patients based on association of complications of dialysis with age (Chills)

Out of 80 patients, no complications were found under the age group of 21-30, no complications were found under the age group of 31-40, 3 patients (75%) were under the age group of 41-50, 1 patient (25%) was under the age group of 51-60, no complications were under the age group of 61-70, no complications were under the age group of 71-80.

Table 11: Distribution of patients based on association of complications of dialysis with age (chills)

Age	No. of patients	Percentage
21-30	0	0%
31-40	0	0%
41-50	3	75%
51-60	1	25%
61-70	0	0%
71-80	0	0%

3.12. Distribution of patients based on association of complications of dialysis with age (Headache)

Among 80 patients, 1 (14.28%) fell into the 21-30 age range, 31-40 fell into the 31-40 age range without complications, 41-50 fell into the 51-60 age range, 51-70 fell into the 61-70 age range without complications, 71-80 fell into the 61-70 age range without complications, and 40-80 fell into the 71-80 age range without complications.

Table 12: Distribution of patients based on association of complications of dialysis with age (headache)

Age group	No. of patients	Percentage
21-30	1	14.28%
31-40	0	0%
41-50	2	28.57%
51-60	2	28.57%
61-70	2	28.57%
71-80	0	0%

3.13. Distribution of patients based on association of complications of dialysis with age (Fever)

Among 80 patients, no issues were discovered in the age groups of 21 to 30, 41 to 50, 40 to 60, 51 to 60, 61 to 70, and 71 to 80. Three patients (27.27%), four patients

(36.36%), one patient (9.09%), and 1 patient had complications in the age groups of 61 to 70 were also found.

Table 13: Distribution of patients based on association of complications of dialysis with age (Fever)

Age group	No. of patients	Percentage
21-30	0	0%
31-40	3	27.27%
41-50	3	27.27%
51-60	4	36.36%
61-70	1	9.09%
71-80	0	0%

3.14. Distribution of patients based on association of complications of dialysis with age (Weakness)

Three patients (13.63%) under the age of 21 were detected among the 80 total patients. 4 patients (18.18%) fell into the 31-40 age range, 3 patients (13.63%) fell into the 41-50 age range, 7 patients (or 18.18%) fell within the 51-60 age range. 3 patients (13.63%) fell within the 61-70 age range. 2 patients (9.09%) fell into the 71-80 age range.

Table 14: Distribution of patients based on association of complications of dialysis with age (Weakness)

Age group	No. of patients	Percentage
21-30	3	13.63%
31-40	4	18.18%
41-50	3	13.63%
51-60	7	18.18%
61-70	3	13.63%
71-80	2	9.09%

3.15. Distribution of patients based on association of complications of dialysis with age (Hypertension)

One patient (100%) was in the age range of 51-60, zero complications were found in the age group of 61-70, and no issues were under the age groups of 71-80 out of 80 patients. None of the age groups 21 to 30, 31 to 40, 41 to 50, or 51 to 80 had any complications.

3.16. Distribution of patients based on association of complications of dialysis with age (Hypotension)

From out 80 patients, no issues were discovered in the age range of 21 to 30, one (9.09%) in the range of 31 to

40, and one (9.09%) in the range of 41 to 50. Six patients (9.09%) in the range 71-80, 6 (54.54%), and 2 (18.18%) fell into the 51-60 age range, 61-70 age range respectively.

Table 15: Distribution of patients based on association of complications of dialysis with age (Hypertension)

Age group	No. of patients	Percentage
21-30	0	0%
31-40	0	0%
41-50	0	0%
51-60	1	100%
61-70	0	0%
71-80	0	0%

Table 16: Distribution of patients based on association of complications of dialysis with age (Hypotension)

Age group	No. of patients	Percentage
21-30	0	0%
31-40	1	9.09%
41-50	1	9.09%
51-60	6	54.54%
61-70	2	18.18%
71-80	1	9.09%

3.17. Distribution of patients based on association of complications of dialysis with BMI

Out of 80 patients, 5 patients (7.69%) were categorized into underweight, 30 patients (46.15%) were categorized into normal, 28 patients (43.07%) were categorized into overweight, 2 patients (3.07%) were categorized into obese.

Table 17: Distribution of patients based on association of complications of dialysis with age BMI

BMI	Total number of patients	Percentage
Under weight	5	7.69%
Normal	30	46.15%
Over weight	28	43.07%
Obese	2	3.07%

3.18. Distribution of patients based on association of complications of dialysis with BMI (Muscle cramps)

Out of 80 patients, 2 patients (11.76%) were categorized into underweight, 9 patients (52.94%) were categorized into normal, 6 patients (35.29%) were categorized into

overweight, no complications were categorized into obese.

Table 18: Distribution of patients based on association of complications of dialysis with age BMI (Muscle cramps)

BMI	No. of patients	Percentage
Under weight	2	11.76%
Normal	9	52.94%
Over weight	6	35.29%
Obese	0	0%

3.19. Distribution of patients based on association of complications of dialysis with BMI (Chills)

Out of 80 patients, no patient was categorized into underweight, no patient was categorized into normal, 4 patients (100%) were categorized into overweight, no patient was categorized into obese.

Table 19: Distribution of patients based on association of complications of dialysis with age BMI (Chills)

BMI	No. of patients	Percentage
Under weight	0	0%
Normal	0	0%
Over weight	4	100%
Obese	0	0%

3.20. Distribution of patients based on association of complications of dialysis with bmi (Headache)

Out of 80 patients, 1 patient (20%) was categorized into underweight, 1 patient (20%) was categorized into normal, 3 patients (60%) were categorized into overweight, no complications were categorized into obese.

Table 20: Distribution of patients based on association of complications of dialysis with age BMI (Headache)

BMI	No. of patients	Percentage
Under weight	1	20%
Normal	1	20%
Over weight	3	60%
Obese	0	0%

3.21. Distribution of patients based on association of complications of dialysis with bmi (hypertension)

Out of 80 patients, 1 patient (100%) was categorized into underweight, no patients were categorized into

normal no patients were categorized into overweight, no patients were categorized into obese.

Table 21: Distribution of patients based on association of complications of dialysis with age BMI (Hypertension)

BMI	No. of patients	Percentage
Under weight	1	100%
Normal	0	0%
Over weight	0	0%
Obese	0	0%

3.22. Distribution of patients based on association of complications of dialysis with BMI (Hypotension)

Out of 80 patients, 1 patient (10%) was categorized into underweight, 5 patients (50%) were categorized into normal, 3 patients (30%) were categorized into overweight, 1 patient (10%) was categorized into obese.

Table 22: Distribution of patients based on association of complications of dialysis with age BMI (Hypotension)

BMI	No. of patients	Percentage
Under weight	1	10%
Normal	5	50%
Over weight	3	30%
Obese	1	10%

3.23. Distribution of patients based on association of complications of dialysis with BMI (Fever)

Out of 80 patients, 1 patient (10%) was categorized into underweight, 3 patients (30%) were categorized into normal, 5 patients (50%) were categorized into overweight, 1 patient (10%) was categorized into obese.

Table 23: Distribution of patients based on association of complications of dialysis with age BMI (Fever)

BMI	No. of patients	Percentage
Under weight	1	10%
Normal	3	30%
Over weight	5	50%
Obese	1	10%

3.24. Distribution of patients based on association of complications of dialysis with BMI (Weakness)

Out of 80 patients, 3 patients (15.78%) were categorized into underweight, 10 patients (52.3%) were categorized

into normal, 6 patients (31.57%) were categorized into overweight, no patients were categorized into obese.

Table 24: Distribution of patients based on association of complications of dialysis with age BMI (Weakness)

BMI	No. of patients	Percentage
Under weight	3	15.78%
Normal	10	52.63%
Over weight	6	31.57%
Obese	0	0%

4. DISCUSSION

To determine how haemodialysis affects the patient's quality of life as it relates to their health, we conducted an observational study. 80 participants participated in the trial over the course of six months using inclusion and exclusion criteria. Out of 80 patients, 49 patients (61.25%) were found to be male and 31 patients (38.75%) were found to be female. Patient's age was categorised into 6 classes 21-30, 31-40, 41-50, 51-60, 61-70, 71-80. Majority of haemodialysis is received by men compared to women.

Dialysis rate is high between age group of 51-60 with 23 patients (28.75%) and dialysis rate is low between age group of 71-80 with patients 5 (6.25%). In 80 patients, 34 patients (42.50%) were found to be overweight and 8 patients (10%) were found to be underweight. Out of 80 patients, 16 patients (20.0%) were having long-term hypertension and 12 patients (15%) were having both hypertension and diabetes as comorbidity.

Males reported high co-morbidity condition than females. Majority of hypertensive cases are seen in females (35.48%). Out of 80 patients, 64 patients (80%) were having complications associated with haemodialysis. In 16 patients (20%) were having no complications associated with haemodialysis.

The common complication seen in patients undergoing haemodialysis are muscle cramps, chills, headache, hypertension, hypotension, fever, weakness.

Among all the common complication weakness (29.57%) was mostly seen, chills (5.63%) were seen in few patients. Complications due to haemodialysis are mostly seen in the patients under the group of 51-60 with 19 patients (29.68%). Among all age groups, patients of 51-60 age group (28.75%) are associated with more complications in haemodialysis.

Obese and non-obese people, as well as patients who are normal weight and those who are overweight, experience similar difficulties. In many patients the above

complications associated with haemodialysis, are having significant impairment on quality life of the patient.

5. CONCLUSION

In order to evaluate how haemodialysis affects the patients' quality of life in terms of their health, we undertook a prospective observational study for a period of 6 months in Global Hospital lakdikapul, Global Hospital L B. Nagar. In our study the sample size was 80 among them males were 61.25%, and females were 38.75%. The majority of the patients in them (28.75%) were between the ages of 51 and 60. 48.75% of the patients are having greater than normal. Many people undergoing haemodialysis are having co-morbidities- Hypertension (21.25%).

Haemodialysis is associated with number of complications these are muscle cramps, chills, hypertension, hypotension, headache, fever, weakness. In our study out of 80 patients, 64 patients (80%) suffered from complications of haemodialysis. Weakness was seen on 29.57% with varying degree of severity. Muscle cramps 25.35%. 16 patients (20%) are having no complications.

People of age group 51-60 (29.68%) are having many complications.

There is no significance difference in complications associated with haemodialysis among obese and non-obese patients.

In our study, patients who reported the aforementioned issues had a considerable negative influence on their quality of life in terms of their health.

Conflict of interest

None declared

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None declared

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