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KIDNEY TRANSPLANT: Reasons for Preference of Kidney Transplantation Versus Hemodialysis by End Stage Kidney Disease Patients.

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ABSTRACT

Background: Kidney transplantation is the treatment of choice for end stage renal disease (ESRD) patients. It increases life expectancy, improves quality of life, achieves greater physical and occupational rehabilitation compared with maintenance haemodialysis. The rationale of this study is to determine reasons for preference of lifelong haemodialysis over kidney transplantation. This study may give us an insight to how this important and life altering decision is made by the patients.
Objective: To determine the reasons for preference of kidney transplantation over lifelong hemodialysis.
Material and Methods: A descriptive cross-sectional study on 329 ESRD patients was conducted in Nephrology Department, Khyber Teaching Hospital, Peshawar. During a period of 8 months, from September 2021 till April 2022. Data was collected by non-Probability consecutive sampling technique. Subjects who were willing to participate were included in the study after taking written informed consent.
Results: A total of 329 patients were observed with mean age of 51 years with SD ± 10.21. Male patients were 204 (62%), and 125(38%) patients were female. In our study 227(69%) patients agreed for kidney transplant while 102(31%) patients refused kidney transplantation. Main reason for acceptance was freedom from haemodialysis 122(37%), on the other hand, 10(3%) patients refused because of surgical complications of transplant surgery & 33(10%) patients refused because of financial constraints.
Conclusion: Our study concludes that 69% of ESRD patients were willing for kidney transplantation, main reasons being freedom from haemodialysis, fluid constraints, diet restrictions.
Keywords: Kidney transplant, End stage renal disease (ESRD), Hemodialysis.

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INTRODUCTION

Kidney transplantation is the treatment of choice for hemodialysis dependent end stage renal disease (ESRD) patients. In patients without contraindications, it increases life expectancy, improves quality of life and achieves greater physical and occupational rehabilitation compared with patients on maintenance hemodialysis[1-5]. Individual patient preferences, religious, ethnic, economic, social, and demographic characteristics influence decisions toward kidney transplantation and treatment options[6].The issue regarding transplantation starts with the patient's desire and commitment to proceed with the kidney transplant.

The process of kidney transplantation starts with providing chronic kidney disease (CKD) patients information regarding different modalities of renal replacement therapy[6,7] and then the patient's desire and willingness to undergo kidney transplant, followed by referral to a kidney transplant center for further evaluation. However, very little is known regionally and especially in our country regarding factors which influences patient's decision of opting for kidney transplantation or to continue with maintenance haemodialysis[8]. Individual patient preferences, religious, ethnic, economic, social, and demographic characteristics influence decisions regarding kidney transplantation and treatment choices.[9,10]

As very limited data is available regarding the willingness on patient's part towards transplantation, a study by Nizič-Kos T, conducted in Slovenia, showed 69% patients showed "willingness to have kidney transplantation" [11]. The main reasons for refusal were being too old for transplantation (61%) and fear of surgical complications (26%).[10]

Previously reported reasons for refusing transplantation, in a study conducted in Poland (57 patients), are the side-effects of immunosuppressive medications (31.6%), unpredictable outcome of transplant (29.8%), and unfavorable outcomes in fellow patients (28.1%).[12] A study among CKD patients reported that 67.3% participants showed willingness to accept a kidney transplant, one of the reasons for acceptance was a better quality of life after transplantation, whilst the barriers for accepting kidney transplantation were fears regarding transplant surgery and

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financial constraints.[13-15] In another study on hemodialysis dependent patients, 34.9% of participants showed willingness to undergo kidney transplantation, 45.93% believed that kidney transplant improves quality of life; while 78.5% stated that it is expensive than hemodialysis.[16-18] Hence, there are various reasons that influence the patients' attitude towards kidney transplantation[19-23].

However, there isn't any relevant study from Pakistan that has explored the reasons for preference of kidney transplantation over lifelong hemodialysis. Therefore, the rationale of my study is to determine the reasons for preference of kidney transplantation over lifelong hemodialysis in our society. This study may give us an insight to how this important and life altering decision is made by the patients. The results of this study may help the healthcare providers in identifying and addressing modifiable factors that improve patients' attitude and willingness towards kidney transplantation.

MATERIAL AND METHODS

This study was conducted in Khyber Teaching Hospital Peshawar. The total duration of study was eight months, that is from 1st September 2021 to 30th April 2022. It was descriptive, cross-sectional study, sample size was 329 using 31% proportion of acceptance of kidney transplantation in ESRD patients, 95% confidence interval and 5% margin of error under WHO sample size calculations.[7] The sampling technique was non Probability consecutive sampling.

Operational Definitions:

End stage renal disease (ESRD): A renal disease patient with defined as having a glomerular filtration rate of less than 15 mL/min and requiring some form of renal replacement therapy.

Transplantation: The process of taking an organ or living tissue and implanting it in another part of the body or in another body.

Donor: A person who donates any part of his body, organ, tissue or cell.

Renal replacement therapy (RRT): It is a therapy for patients with kidney failure that replaces kidney function (i.e., removal of wastes and excess water from the body), RRT includes hemodialysis, peritoneal dialysis, and kidney transplant.

Hemodialysis: Hemodialysis is a procedure where a dialysis machine and a special filter called an artificial kidney, or a dialyzer, are used to remove waste products from blood.

Data Collection Procedure

The study was conducted after approval from hospital's ethical and research committee dated 15th July 2021, (No 116/REC/Neph) The subjects were selected from ESRD patients presenting to Nephrology Department, Khyber Teaching Hospital Peshawar meeting the inclusion criteria and were invited to participate in the study. The purpose and benefits of the study was explained to all those included subjects and a written informed consent were obtained. All the information was recorded on a questionnaire.

The inclusion criteria were ESRD patients, both male and female, aged 18 years and above, presenting to Nephrology Department Khyber Teaching Hospital Peshawar. Whilst patients with active malignancy or treated malignancy in the last 5 years, those with active vasculitis, or having psychiatric problems with inability to make informed decisions were excluded from this study.

Data Analysis

The data was managed and analyzed using SPSS version 18. This was a descriptive study that used measures of central tendency such as Mean and measures of dispersion like standard deviation for age of the patients and duration of hemodialysis. Frequencies and percentages were used to describe categorical variables such as gender, yearly income, level of education, marital status and session per week, Kidney transplant and reasons of preference of hemodialysis over kidney transplant. Effect modifiers like age, duration of hemodialysis, gender, yearly income, level of education, marital status and session per week was address through stratification. Post stratification chi square test was applied. P =0.05 was taken as significant value.

RESULT

In the present study age distribution among 329 patients was analyzed as 72(22%) patients were in age range 18-40 years, 122(37%) patients were in age range 41-50 years, 135(41%) patients were in age range 51-60 years. Mean age was 51 years with SD ± 10.21. Among 329 patients, 204(62%) patients were male and 125(38%) patients were female. Moreover, 270(82%) patients were married while 59(18%) patients were unmarried.

Duration of hemodialysis among 329 patients showed that 217(66%) patients had dialysis =2 years, 112(34%) patients had dialysis from >2 years, and 240(73%) patients had dialysis session = 2 times per week, while 89(27%) patients had dialysis session > 2 times per week.

Regarding yearly income, 109(33%) patients had yearly income < 200,000 Rs, 102(31%) patients had yearly income 200,000 500,000 Rs, 89(27%) patients had yearly income 500,000 -1,000,000 Rs, 29(9%) patients had yearly income >1,000,000 Rs. Added to it, 119(36%) patients were illiterate, 95(29%) patients had primary education, 79(24%) patients had secondary education, 36 (11%) patients were university students (Figure 01).

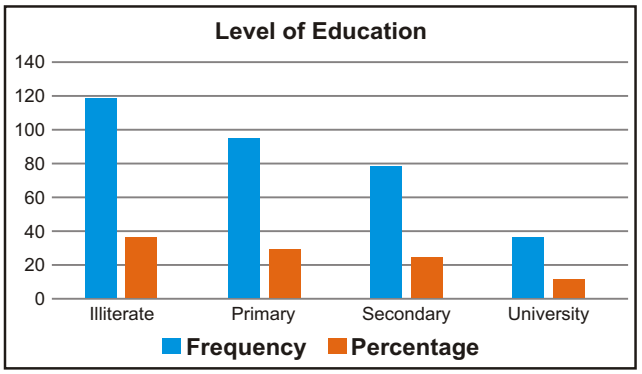


Figure 01. Level of Education

In our study, 227(69%) patients had willingness to undergo kidney transplant while 102(31%) patients refused a kidney transplant (Figure 02). Reasons for acceptance of kidney transplant among 329 patients were, freedom from hemodialysis 122(37%), fluid restrictions 69(21%) while 36(11%) patients had accepted because of freedom from diet constraints (Figure 03).

Reasons for refusal of kidney transplant were fear of surgical complications of transplant surgery 10(3%), side effects of immunosuppressive medications 13(4%), unpredictability of transplant outcome 20(6%), unfavorable outcomes in fellow patients 26(8%), and 33(10%) patients refused because of financial burden of kidney transplantation (Figure 04).

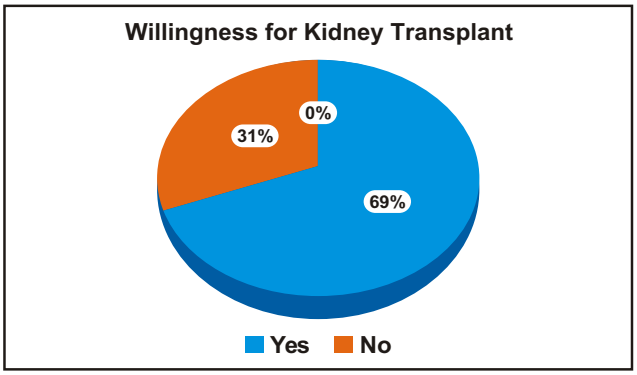


Figure 02. Willingness for Kidney Transplant

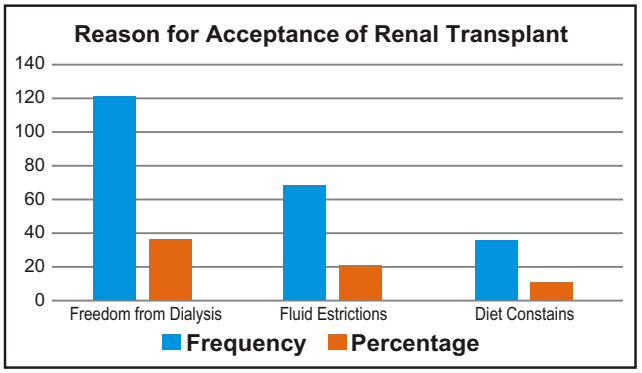


Figure 03.
Reason for Acceptance of Renal Transplant

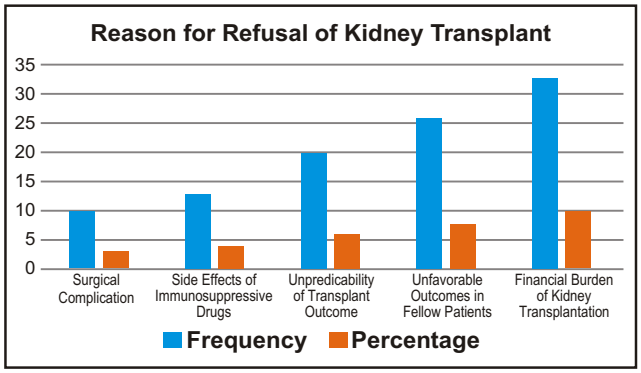


Figure 04.
Reason For refusal of Kidney Transplant

DISCUSSION

In the present study 329 patients were observed in which mean age was 51 years with SD ± 10.21. 204(62%) patients were male, and 125(38%) patients were female. Patients who showed willingness for kidney transplant were 227(69%) while 102(31%) patients didn't agree for kidney transplant. Reasons for acceptance of kidney transplant were freedom from hemodialysis 122(37%), fluid restrictions 69(21%) and diet constraints 36(11%). On the other hand, reasons for unwillingness towards renal transplantation were fear of surgical complications of transplant surgery 10(3%), side effects of immunosuppressive medications 13(4%), unpredictability of transplant outcome 20(6%), unfavorable outcomes in fellow patients 26(8%), and 33(10%) patients refused because of financial burden of kidney transplantation.

In a study conducted by Kabbali N et al[4] reported that 73.3% of patients were willing for kidney transplantation, among these subjects, 75.7% would accept the graft from both living or cadaveric donors; 17.8% refused transplantation from a related living donor; and 6.5% refused to receive graft from donors after brain death. Almost 17% of patients have a living donor. The main reason for accepting KT was freedom from fluid and diet restrictions (43.3%). Other factors influencing patients' decisions toward KT were young age, male gender, residual renal function, having a living donor, and knowhow regarding transplantation.

Another study conducted by Alansari H et al[9] reported that among the 252 HD patients, 61% considered their knowledge about kidney transplantation as poor. Only 69% showed interest in considering renal transplantation. Reasons for refusal were being too old for transplantation (61%) and fear of surgical complications (26%). Increasing age (more than 60 years), duration of HD (more than 5 years) and being unmarried were some factors which had a negative impact on considering KT as renal replacement modality.

A study conducted by Nizič-Kos T et al[11] had reported that 11.6% of the subjects had had a previous transplant. Almost 72.0% of the patients agreed that the quality of life improved with renal transplantation, and 55.5% believed that life was prolonged with KT. Only, 45.0% of the patients showed willingness for kidney transplantation, 35.0% refused, and 20.0% had not made up the decision yet. Compared with young patients, more older patients refused KT. The main reasons for not accepting transplantation (57 patients) were the side-effects of medications (31.6%), unpredictable transplant results (29.8%), and poor outcomes in other patients (28.1%). The main concerns regarding side-effects of immunosuppressive medications included problems in mobility (29.8%), new-onset diabetes (26.3%), increased risk of infections (26.3%), vision problems (22.8%), and increased cancer risk (21.1%).

CONCLUSION

Our study concludes that the 69% of patients agreed for kidney transplant, the main reasons were freedom from hemodialysis, fluid restrictions and diet constraints. On the other hand, main reasons for refusal were surgical complications of transplant surgery, side effects of immunosuppressive medications, unpredictable transplant outcome, unfavorable outcomes in fellow patients, and ten percent patients refused because of financial burden of kidney transplantation.

Limitations

1. The small sample sizes who are a subgroup of the general population limited the statistical inference.
2. Our data originated from a single medical center, therefore not applicable to generalized population. The replication of these findings in other academic or community hospital settings would further strengthen the validity of the conclusions.

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DATA SHARING STATEMENT: The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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AUTHOR'S CONTRIBUTION
The following authors full fill authorship criteria as per ICMJE guidelines;

Farishta S, Zeb A:	Idea conception, data acquisition, final approval, agreed to be accountable for all the work.
Sajjad H, Kumar A:	Design of the work, drafting the work, critical rivision, final approval, agreed to be accountable for all the work.
Nisar Z:	Data analysis, drafting of the work, final approval, agreed to be accountable for all the work.
Azhar A:	Data interpretation, critical revision, final approval, agreed to be accountable for all the work.