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Original Article

Challenges Accessing Kidney Transplantation in Lagos, Nigeria

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ABSTRACT

Background: Kidney transplantation (KT) is the best form of treatment for end-stage renal disease (ESRD); however, worldwide, there are potential barriers along the pathway to transplantation.
Objective: The aim of this study was to identify the major impediments to KT programme in Lagos, Nigeria.
Materials and Methods: This was a cross-sectional, descriptive study of patients with ESRD who have been on regular dialysis for at least 3 months at the Lagos University Teaching Hospital from January 2012 to December 2014. Using pretested questionnaire, relevant clinical and demographic information was obtained including the challenges faced with access to kidney transplant programme.
Results: Fifty-seven patients were recruited, of which 30 (52.6%) were male, with a mean age of 40.6 ± 12.8 years. The common aetiologies of ESRD were hypertension (40.4%) and chronic glomerulonephritis (26.3%). The mean duration on dialysis was 8.7 ± 5.84 months (range, 3–28 months). The greatest challenges were lack of donors and lack of funds in 38.5% concurrently, whereas 25% said that they had donors but lack the funds, 5.8% had funds but no donor and 7.7% said that they were not psychologically prepared for kidney transplant at the time of the study.
Conclusion: The greatest challenge to KT in Nigeria was scarcity of both donors and funds. Government and health insurance agencies should incorporate renal replacement therapy into their policies. The donor pool could be expanded through establishment of deceased-donor transplant programme in Nigeria.

Key words: Access to care, end-stage renal disease, kidney donation, kidney transplantation

How to cite this article: Amira CO, Busari AA, Bello BT. Challenges accessing kidney transplantation in Lagos,Nigeria. Niger J Health Sci 2017;17:20-4.

INTRODUCTION

Kidney transplantation (KT) is the preferred form of treatment for patients with end-stage renal disease (ESRD) because it offers good quality of life and survival advantage and it is cost-effective compared with other treatments for those on dialysis.[1,2] Therefore, there is the tendency to offer KT to most patients with ESRD. Consequently, greater number of patients are being placed on the waiting list for deceased-donor (DD) kidney transplants in developed countries, which is increasing the waiting times for all candidates who are registered for a kidney transplant.[3] Waiting time begins when a candidate is placed on the waiting list at the estimated glomerular filtration rate of 20 mL/min or less using Cockroft–Gault or Modification of Diet in Renal Disease equation and the time the individual receives an allograft.[4] The median waiting time in the United States has increased from 3 years in 2003 to more than 4.5 years in 2009 as a result of increasing number of candidates that qualify to be listed, and there is no change in transplant rates.[5] Other challenges faced by the patients on the waiting list include nonavailability of certain blood groups, particularly O and B; high-panel reactive antibody level sensitivity; inadequate supplies of organs; and inequality of access by different ethnic groups to transplantation programme.[6]

Submission: 11-June-2016 **Revised:** 23-January-2018 **Accepted:** 05-June-2019
Published: 26-November-2019

Access this article online

Quick Response Code:

Website: www.chs-journal.com

DOI: 10.4103/njhs.njhs_15_16

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In Nigeria like in most developing countries, there is no DD transplant programme and thus KT organ-sharing programme does not exist; only living-related KT exists. This was only started in the year 2000 and to date, there are about 12 centres in the country doing transplants, with majority of these centres having very low activities of 1–5 transplants per year.[7] In most developing countries of the world including Nigeria, a great majority of patients with ESRD are not able to access renal replacement therapy (RRT) including KT due to financial difficulties, thus leading to high mortality.[7-9] Arije *et al*. reported that 70% of their patients could not afford long-term dialysis.[10] Only a very small proportion (1%) of this high population of ESRD is able to get transplanted.[7] In view of the survival advantage and better quality of life with KT and cost-effectiveness, nephrologists in Nigeria now prefer to offer patients with ESRD KT option rather than allowing them to spend their scarce resources on maintenance dialysis which often results in poor outcomes (Bamgboye EL, Personal Communication).

In view of the limited number of transplants being currently done in various centres, with our centre being one of such hospitals with KT services, we conducted a study with the aim of determining the challenges being encountered by patients with ESRD in accessing KT programme. It is hoped that the information obtained will help in the formulation of RRT policies that will be beneficial to majority of the patients in Nigeria.

MATERIALS AND METHODS

This was a cross-sectional descriptive study of patients known to have ESRD who have been on regular maintenance dialysis for at least 3 months at the dialysis centre of Lagos University teaching Hospital (LUTH). Consecutive ESRD patients who met the inclusion criteria and who consented to participate in the study were recruited. Those excluded were patients who had been on dialysis for < 3 months, patients with acute kidney injury, and those who declined to participate. The patients were recruited from January 2012 to December 2014. The demography and clinical data were documented. The clinical data obtained included age, gender, aetiology of ESRD, vascular access, dialysis vintage, frequency of dialysis, serum creatinine, packed cell volume and blood pressure at the time of enrolment in the study. The aetiology of ESRD was determined based on relevant history, physical examination and laboratory investigations such as ultrasonography, urinalysis, blood chemistry, serology and kidney biopsy.

The questionnaire was pretested among ten respondents with ESRD and was administered to collect information on KT as a treatment option for their ESRD as well as possible impediments to obtaining KT. The information collected included if the respondents would like to have a kidney transplant using a ‘yes or no’ format and if yes, what were the impediments to accessing this form of treatment using both open-ended and close-ended formats. Such challenges included not having a donor and funds simultaneously, having a donor but no funds for transplant, and having funds but no donor to name but a few.

DATA ANALYSIS

Data were analyzed using Epi Info® 2002 Centers for Disease Control and Prevention (CDC), Atlanta Georgia, USA. Descriptive statistics included simple tabulation, frequencies and proportion for categorical variables and mean ± standard deviation for continuous variables.

RESULTS

A total of 57 patients were seen during the period under review [Table I]. There were thirty (52.6%) males, with a mean age of 40.6 ± 12.8 years. The common aetiology of ESRD was hypertension (40.4%) followed by glomerulonephritis (26.3%). Miscellaneous causes of ESRD included sickle cell nephropathy (n = 2), adult polycystic kidney disease (n = 1), lupus nephritis (n = 1) and obstructive uropathy (n = 1). The mean duration on dialysis was 8.7 ± 5.84 months (range, 3–28 months). In terms of vascular access, 19 (33.3%) were dialysed through temporary jugular/subclavian catheters, whereas 13 (22.8%) had arteriovenous fistula. The frequency of dialysis is shown in Figure 1, with majority dialysing either once (n = 24) or twice (n = 24) a week. The mean cost of haemodialysis per week was N44,684.21 ± 18,244.53 (range N25,000–100,000 = USD

Table I: Characteristics of the study population (n=57)

	n **(%)**
Age in years (SD)	40.6 (12.8)
Male	30 (52.6)
Duration on dialysis in months (SD)	8.7±5.84
Estimated glomerular filtration rate (ml/min)	5.31±1.52
PCV %	25.2±3.77
Systolic blood pressure (mmHg)	148.4±17.81
Diastolic blood pressure (mmHg)	90.1±11.78
Mean cost of dialysis per week (Naira)	44,684.21±18,244.53
Mean cost of dialysis per week (US$)	225.68±92.14
Aetiology of ESRD	
Hypertension	23 (40.4)
Glomerulonephritis	15 (26.3)
Diabetes mellitus	10 (17.5)
Unknown	4 (7.0)
Miscellaneous causes	5 (8.8)
Education	
None	2 (3.5)
Primary	7 (12.3)
Secondary	26 (45.6)
Tertiary	22 (38.6)
Vascular access	
Untunnelled subclavian and jugular catheters	19 (33.3)
Single-lumen femoral catheters	19 (33.3)
Arteriovenous fistulae	13 (22.8)
Tunnelled jugular catheters (perm cath)	6 (10.6)

Miscellaneous causes=Adult polycystic kidney disease=1, Sickle cell nephropathy=2, Lupus nephritis=1, Obstructive uropathy=1. PCV: Packed cell volume, ESRD: End-stage renal disease, SD: Standard deviation

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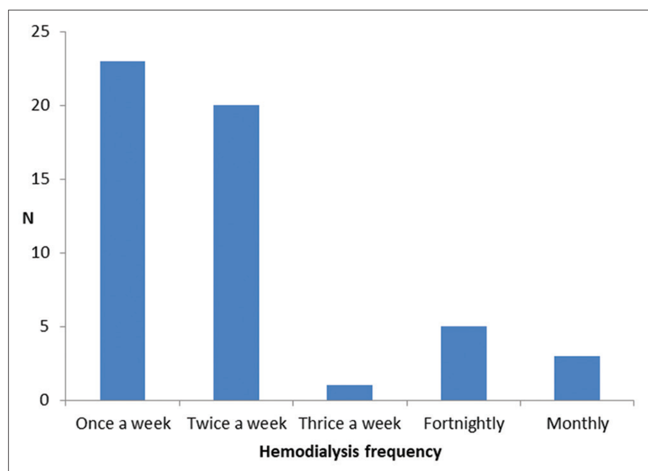

Figure 1: Frequency of hemodialysis

126–505 at an exchange rate of N198 = 1 USD as at December, 2014) [Table I]. In terms of occupation, majority of the respondents (25%) were engaged in business, 14% belonged to different professions, and 12.3% were students [Table II]. Thirty-seven respondents (64.9%) were not actively working at the time of the study.

The majority, i.e., 44 (77.2%) respondents, indicated that they would like to have a kidney transplant, 11 (19.3%) respondents said that they do not want to have a kidney transplant, while 2 (3.5%) respondents were undecided about having transplant. Various reasons were given for not wanting kidney transplant; five respondents believed that they would be healed and recover function, whereas three gave no reasons [Table III]. In terms of challenges faced, the greatest challenge was lack of donors and lack of funds concurrently (38.5%), whereas 25% said that they had donors but had either no funds at all or insufficient funds for transplant; 7.7% said that they were not emotionally ready for such treatment at the time of study, while 5.8% had funds but no donor. Six respondents gave multiple responses. Table IV shows a summary of the various challenges faced by the respondents. Only one patient had funds and donor and he subsequently had transplantation.

About 19% of the respondents did not want to be transplanted. Some of them were still in denial and hoping for recovery of kidney function, while others felt that their illnesses were not as serious as to require kidney transplant.

Eleven (19.3%) patients were eventually transplanted; seven had their kidney transplant in India, two were transplanted in LUTH, and the other two at another centre in Lagos.

Table II: Occupation of the respondents (*n*=57)

Occupation	*n* (%)
Business	14 (24.6)
Professional	8 (14.0)
Student	7 (12.3)
Artisan	6 (10.5)
Trader	6 (10.5)
Civil servant	6 (10.5)
Unemployed	4 (7.0)
Homemaker	2 (3.5)
Retiree	2 (3.5)
Teaching	1 (1.8)
Clergy	1 (1.8)

Professionals: Engineers (*n*=4), accountants (*n*=2), computer analyst (*n*=1), sailor (*n*=1)

Table III: Reasons for not wanting a kidney transplant (*n*=11)

Responses	*n* (%)
Believe in divine healing/recovery of function	5 (45.5)
No reasons given	3 (27.3)
I want to just continue with dialysis for now	1 (9.1)
I believe my illness is not so serious as to need transplant	1 (9.1)
I believe life is not everlasting	1 (9.1)

Table IV: Challenges of end-stage renal disease patients getting a kidney transplant (*n*=52)

Responses	*n* (%)
I do not have a donor and funds for transplant	20 (38.5)
I have a donor but do not have funds	13 (25.0)
I do not want to undergo this treatment in Nigeria	5 (9.6)
I am not emotionally ready for this kind of treatment now	4 (7.7)
I do not have a donor but have the funds	3 (5.8)
I do not think I am well enough for this treatment	3 (5.8)
I have not been informed about this treatment	2 (3.8)
I have a donor and funds for treatment	1 (1.9)
I do not know where to get this treatment	1 (1.9)

DISCUSSION

KT is the best form of treatment for ESRD; however, worldwide, there are challenges accessing this care. Access to KT depends on national policies, availability of transplant services, availability of organs and cost of healthcare.[8] The issues differ from one region to the other, but the most universal problem is shortage of organs.[11] Worldwide, there is a shortage of organs for transplantation due to increasing demands as a consequence of the ever-increasing number of patients with ESRD, decrease in supply of organs and failure of transplanted kidneys.[11] Consequently, patients have to remain on the waiting list for years while some die during this prolonged waiting time.[3,6,12]

In this study, the major challenge to accessing KT was lack of donors and lack of funds concurrently as reported by twenty respondents. Lack of donors has been cited as the most common reason for the long waiting period in the developed countries, and this has led to the expanded donor criteria with the possibility of increasing the donor pool.[3,6,11] Other methods adopted to mitigate donor shortage in developed countries include the introduction of renal transplants between blood-group-incompatible and positive cross-match donors and

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recipients by means of immunologic pre-conditioning, tailored immunosuppressive regimens and intense monitoring.[13] In addition, paired exchanges of kidneys and altruistic donations have further increased the number of renal transplants.[14]

In Nigeria, only living-related transplants are done; deceased kidney donation is still not available due to lack of enabling legislation and logistic support for keeping brain-dead people alive.[7] There is also reluctance towards kidney donation observed among people in most Black ethnic communities or African-American communities. Studies have shown low kidney donation rate among African-Americans.[15] There are varying reports on the willingness towards kidney donation in Nigeria.[16-19] While some studies reported increased willingness to donate among respondents,[16,17] others indicated low willingness towards kidney donation.[18,19] Aghanwa *et al*.[16] in Ile-Ife reported a higher proportion of willing organ donors among health-care workers (62.3%) and relatives of patients with ESRD (52.1%), whereas Oluyombo *et al*.[18] reported low willingness to donate (29.5%) among health-care workers in their study. These differences could be due to variations in the population characteristics, timing of study (pre-transplant era vs. posttransplant period in Nigeria), as well as availability of local transplant services.

It is known that patients with ESRD living in developing countries face many obstacles including lack of access to dialysis and transplantation, quality and safety issues and exploitation associated with transplant tourism.[8,20] Countries achieving the best rates of transplantation usually combine deceased and living donors and can transplant more than fifty people per annum per million population.[21] In view of the growing demand for organs, which exceeds supply, and the high potential for DD pool in our community, it is essential to initiate a DD programme in Nigeria to augment the very lean living donor pool and to discourage commercial transplantation. In addition, this will also boost the local skills on transplantation. However, this requires an enabling act on the part of the government as well as provision of the necessary infrastructure for keeping brain-dead individuals alive until the organs can be harvested. There is a need for intensive public enlightenment campaigns to clarify any cultural or religious misconceptions towards kidney donation, whether living or deceased kidney donation.

The lack of governmental support has been cited as a great hindrance to the smooth running of RRT programmes in Nigeria and other developing countries.[7,20,22] Majority of people in Nigeria are poor and the cost of medical care is borne out of pocket.[20] For majority (68.4%) of the patients in our study, cost of care was borne by their families and the average cost of dialysis was N5363 000 (USD 2712) per annum. Because of the high cost, the majority of the patients dialyzed infrequently. The cost of dialysis per session in Nigeria is about USD 125, and the cost of KT is USD 17,000–35,000 depending on whether it is done in public or private setting and if it is subsidised by the institution. The cost is way beyond the reach of most people of Nigeria, a country where about 70% live below the poverty level (live on <USD 1.25/day).[20,23] In most countries with successful RRT transplant programmes, there is usually a strong support from government or health insurance agencies.[20] The National Health Insurance Scheme though had already incorporated kidney care into its policy, it is in action for only the initial six sessions of dialysis and this is yet to take off effectively.[20] On the other hand, the KT model for developing countries as proposed by Rizvi could be adopted in Nigeria.[24] The model is based on community–government partnership in which the government provides the necessary infrastructure in a specialised centre, while the community provides the funding through philanthropic gesture.[24] With such a model, the transplant rates are likely to increase as both dialysis and transplant care will be given free to the affected members of the community, and this will go a long way in improving the local technical capacity and discourage transplant tourism. This model has been successfully practiced at Sindh Institute of Urology and Transplantation, Karachi, Pakistan, for more than 25 years.[24]

In our study, a small percentage (9.6%) declined to undergo this form of treatment in Nigeria, which could be due to lack of confidence in the technical expertise locally or the perception that transplant is cheaper in some Asian countries. Other reasons may include the desire to have a holiday abroad and complicity of transplant tourism becoming a major business transaction in Nigeria. Another 1.9% lacked knowledge of KT procedure in Nigeria. The possible explanation for this is dearth of public awareness education in Nigeria given the low literacy level among the general population which has been identified as one of the barriers to effective renal care in the country.[25] It is, therefore, crucial to maximise the World Kidney Day programme in every community by the Nephrology Association of Nigeria and various centres where nephrology services are offered. Our study has some limitations; the small number of respondents studied and report from a single centre may preclude generalisation of results. A large multicentric study is desirable to evaluate the problem on a global scale. Despite this, the study provides insight to the challenges of accessing kidney transplant care in Lagos, Nigeria.

CONCLUSION

The major barriers to KT care in Lagos, Nigeria, are scarcity of donors and dearth of funds. There is an urgent need for a proper policy on kidney disease care in Nigeria to stem down the increasing number of patients with ESRD affecting the productive segment of the population. The policy should revolve around robust legislative enactment that is implementable kidney disease care that incorporates health insurance policy, DD-enabling acts and development of infrastructures in tertiary health institutions.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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