

Issues of Chronic Kidney Disease (CKD) and End Stage Kidney Disease (ESKD) in Southeastern Nigeria: A Study of Patients on Dialysis

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Abstract

Kidney disease in Nigeria affects 20% of the population, according to a number of studies on the subject. Several factors, including lack of access to quality healthcare, self-medication, poverty, political corruption, inadequate funding and sub-standard healthcare facilities contribute to the inability of a solid majority of patients to manage the illness. In consequence, renal failure has contributed to a rising mortality rate. This study aims to investigate several aspects of the problem among patients with Chronic Kidney Disease (CKD) and End Stage Kidney Disease (ESKD). The study will particularly examine healthcare access issues influenced by economic status. The study will be conducted in Southeastern Nigeria. A blend of descriptive, document review, analytical and statistical methodologies will be used to collect and analyze the data.

Keywords: Biomass; Spirometer; Respiratory symptoms; Low birth weight

Introduction

The Nigerian healthcare system is a mixed model of public and private sector providers. The public sector is a multi-tiered system consisting of primary, secondary and tertiary (specialist) providers. Chimezie described the system as one fraught with enormous challenges [1]. These challenges encompass inadequate funding, shortage of specialists, poor health promotion strategies and poorly equipped healthcare facilities.

For the elite of Nigeria, medical tourism has become an alternative to a failed healthcare system they built but which they do not use because of the problems associated with it. Nigeria's Minister of State for Health, Dr. Osagie Ehanire, was quoted in a newspaper article published in October 2016 as claiming that "Nigeria spent USD 1 billion annually on medical tourism" [2]. Whereas the elite effectively provide expensive care for themselves and their families in foreign lands with good healthcare systems, the less privileged are abandoned to the inequities and shortcomings of the system. Dr. Ejike Oji, the Chairman of the Nigerian Association for the Advancement of Family Planning (AAFP) stated in a newspaper interview published in November 2016, that Nigeria's maternal mortality rate, at 576 per 1,000 live births (400,000 dead pregnant women annually), was the second highest in the world after India [3].

The CDC reported malaria as being the leading cause of death in Nigeria, accounting for 20% of deaths. In the Southeastern region of Nigeria, the location of this study, mortalities from renal failure was more than 20% [4]. In a study conducted in the city of Port Harcourt, south of the southeastern region of Nigeria [5], found 20% kidney disease morbidity. There is thus solid empirical evidence of kidney issues in Southeast Nigeria and in the adjoining region known in the Nigerian political nomenclature as the South-south. Port Harcourt is located in this region.

With the use of a blend of descriptive, document review, analytical and statistical methodologies, the study will seek to find answers to the following research questions:

1. What are the frequencies by gender of end stage renal failure in patients on dialysis in government owned treatment centers?

2. What are the frequencies by age of end stage renal failure in patients on dialysis in government owned treatment centers?
3. Are dialyzing resources at government owned dialysis centers adequate?
4. Is the cost of dialysis affordable to those receiving the treatment?
5. What are the personal perspectives of patients on a number matters dealing with their kidney failure, and the impact of the disease on their lives?

Rationale

Nigeria's poor healthcare system has spawned a national healthcare dichotomy of privileged and under privileged relative to access to quality healthcare. Whereas the privileged can afford expensive care in the US, the UK and the Middle East, the less privileged must make do with the grossly inadequate system that falls far short of effective responsiveness to their healthcare needs. One of the manifestations of the failed healthcare system is its inability to provide adequate care for Chronic Kidney Disease (CKD) and End Stage Kidney Disease (ESKD). End stage renal failure and mortalities associated with it is high. The rich can afford expensive transplants, but the poor cannot. Transplants when performed in Nigeria can cost between N5 to N7 million (about USD 13,000 to USD 19,000 in the exchange rate as of October 2017). In a country where the minimum wage is N30,000, the cost of a transplant is a stratospheric cost beyond the capability of 90% of the population. This study will examine impecuniousness as a factor in access to dialysis care.

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Literature Review

Akpomuvie found that more than 70% of Nigeria's population had no access to healthcare services [6]. The result is a society where a citizen with no access to healthcare can be one step away from a healthcare crisis that could be fatal. The maternal mortality rate is a whopping 400,000 annually. Within the larger healthcare crisis Nigeria has, the rate of Kidney failure has increased in the last decade as the components of the healthcare system-hospitals, clinics, providers, pharmaceuticals, specialists-perform woefully, primarily because the funding component in a nation of 186 million [7] has historically been grossly inadequate. In 2017, the government budgeted N304 billion (USD 810 million) for the healthcare sector out of a national budget of N7.2 trillion (USD 20 billion). The percentage of the national budget allotted to healthcare was a paltry 4% in a nation of a myriad healthcare challenges where a majority of the population have healthcare access difficulty issues.

At an international symposium on kidney disease and renal transplantation held in 2016 in Lagos, Dr. Bamgboye of the renowned ST Nicholas Hospital of Lagos reported that more people died in Nigeria from kidney related diseases than malaria and HIV/AIDS [8]. There was a lack of management of the disease as a consequence of poverty and its associated lack of access to proper medical care. In a lecture at the University of Nigeria, Nsukka, Ifeoma Ulasi of the University's Department of Nephrology reported her findings of 20% of the mortality rate in the Southeast Region of Nigeria being attributable to kidney disease. Most patients sought treatment for kidney disease at the end stage when a transplant was needed [9].

Chronic unemployment in Nigeria and economic hardship were significant factors that placed kidney transplants out of reach of the average Nigerian exhibiting morbidity of end stage renal disease [10]. In spite of being an oil producer, Nigeria remains in the category of poor nations. In 2016, industrial production contracted by -4.7% and Nigeria placed 193rd in the world in industrial output. The unemployment rate was 26.9% in 2016 [7]. The challenges of the economy adversely affect the economic condition of the citizenry, but the more than 70% who live below the poverty line are the hardest hit. It is most certain that a majority of the mortalities of end stage renal disease are from the poor class of the population. That kidney disease also manifests in classes of people considered slightly well to do or affluent was established by Ordinioha in a study of lecturers at a medical school in Port Harcourt. Ordinioha found that 20% of the participants had kidney ailments [11]. A comparable study was conducted of civil servants in the employ of the Kano State Government and the results indicated a 20% rate of morbidity [12].

Afolabi et al. tested 250 patients who received healthcare at a family practice for traces of kidney disease and found 45% exhibited factors associated with the disease [13]. They attributed this to the risk factors of age, family history of diabetes, habitual use of untested local herbs, and heavy use of analgesics. Egun Bamgboye, President of the Nephrology Association of Nigeria, states that Nigeria could have as many as 36 million people with kidney disease, of which 50,000 may have chronic kidney disease and in need of dialysis [8]. Of this number, only about 1,000 can consistently remain on dialysis treatment.

The costs of transplants are exorbitant between USD 13,000 to USD 19,000 were performed in Nigeria. Hamilton found that "the practice of organ transplantation has spread across the globe at an uneven pace," and that "other types of new surgical procedures usually take hold steadily in less developed nations, emerging when finances permit,

and public awareness increases and demand grows (p xviii) [14]. The demand has certainly grown in Nigeria for transplants.

The rich can afford these transplants. The poor, in contrast, cannot unless sponsored by philanthropic organizations or individuals. There is no kidney health promotion of any significant import. As pointed out by Afolabi et al. [13], habitual use of local herbs as curative medication and analgesics are risk factors. There is no comprehensive regulation of these powerful analgesics which are easily available as OTC medications. Not every poor person with end stage renal disease can qualify philanthropically from a kidney transplant. As such, a yardstick which establishes qualification on the basis of extreme indigence should pass ethical muster.

Materials and Methods

The descriptive, document review, analytical and statistical methodologies were blended in the collection of the data and in the analysis of same. Contact was established with top public hospitals in the research area to seek access to the databases of patients who had been dialyzed. The historical data contained names, gender, age and when dialysis had begun. Four of the patients were randomly selected for in depth unstructured interviews during which perspectives on various aspects of their disease-payments for treatments, income status, etc. were obtained.

Limitations of the Study

Due to funding constraints, the study could not be widened to include the additional 4 states in the Southeast Region of Nigeria, an area with an estimated population of close to 30 million. There are 5 states in the Southeast Region and Imo State, the location of the study, is one of them. The Southeast is inhabited by the Igbo people.

Findings

The study was conducted from August 28 through September 6, 2017 in the cities of Owerri and Orlu. Both cities are located in the heart of the Southeast Region of Nigeria, specifically in the State of Imo. Historical patient data was collected at 3 government-owned dialysis treatment facilities. These treatment centers are located at the Federal Medical Center, Owerri (Federal Government owned); the Imo State University Teaching Hospital, Orlu and Ochidike Dialysis Center, Owerri, both were State Government owned. The 3 facilities are the only publicly owned centers for dialysis treatment in the entire State of Imo, which has a population of 5 million. Additional data was collected through a combination of interviews with healthcare providers, administrators of hospitals and treatment facilities, and patients. The 3 healthcare facilities provided records of patients who received treatment. Types of kidney diseases were: End Stage Kidney Disease (ESKD); Chronic Kidney Disease (CKD); hypertensive nephrosclerosis; toxic nephropathy, and diabetic nephropathy. All the patients were on dialysis treatment.

The population sample size was 189. The data was organized such that an analysis could be made of the following key elements of the study: gender, age, affordability of dialysis, resource adequacy/inadequacy at treatment centers, and whether treatment was affordable to patients. To gain an insight into the minds of patients on a number of matters that pertained to kidney disease and the impact of the disease on their lives, 4 patients were randomly selected from the sample for extended unstructured interviews.

Findings Related to Each Research Question

What are the frequencies by gender of end stage renal failure in patients on dialysis in government owned treatment centers?

Table 1 shows the distribution of patients by gender. Of the sample size of 189, there were 130 men. This represented 68% of the sample size. Women, who numbered 59, made up 31% of the sample. The ratio was more than 2:1 of men more likely to be on dialysis than women. According to the Nigerian population census of 2006, the proportion of the population of the State of Imo that was female was more than 50%. No co relational relationships were established in the study between being female and being less likely than men to be afflicted with end stage renal disease. However, the statistic and the associational relationship it established is intriguing enough to deserve further study. Ulas, et al. conducted a similar study of end stage renal disease patients in Southeastern Nigeria with a sample size that showed an almost 2:1 ratio of a preponderance of men. Further research to determine causative factors relative to their effects from a gender perspective could look at lifestyle, economic and genetic factors [9]. It is also possible that women afflicted with kidney failure have access issues caused by economic hardship. As men have greater financial means relative to women in Nigerian society, they are more likely to be inclined to seek treatment than women would.

What are the frequencies by age of end stage renal failure in patients on dialysis in government owned treatment centers?

Table 2 shows the frequency distribution of patients by age. The most number of patients were in the 60 plus category. They numbered 44 or 23% of the sample size. The next highest were those in the 50 plus category who numbered 43 or 22%. Including those in the 40 plus category who made up 16% of the total, the age group of 40 and above combined for a total of 119 patients or 61%. Patients in the 30 plus and fewer than 30 categories combined for a total of 36%. The data shows that end stage renal failure is prevalent in middle age, although 36% of the data showing affliction in the 30 plus and under 30 categories should be concerning, in view of the young age of the patients and implications for national economic productivity if these figures were to be inferred nationally.

The female presents distribution by age and it shows that those in the categories of 40 and above through 60 and above made up 57.5% of females in the study. Again, as in the pattern for all age groups where the young constituted 36% of patients, 42.5% of patients in the female

Gender; n=189	On Dialysis	(%) of n Number of people in Study
Male	130	68.80%
Female	59	31.20%
Total	189	100%

Table 1: Frequency distribution of dialysis patients by gender.

Age; n=189	Patients	(%) of n Number of people in Study
60+	44	23.30%
50+	43	22.80%
40+	32	17%
30+	41	21.70%
Under 30	29	15.30%
Total	189	100%

Average Age=46.1.
The mean age is 46.1 years ± 1.98 at 95% confidence interval.
The mean age is 46.1 ± 13.9.

Table 2: Frequency Distribution of dialysis patients by age.

demographic were in their thirties or below the age of 30. From the perspective of women of child bearing age, this statistic raises red flags for a number of reasons, from the complications of pregnancy to long term health issues affecting infants born to women with end stage kidney issues (Table 3).

Mbamara et al. examined the case of a pregnant woman with end stage kidney disease who was successfully delivered of her baby, but they stressed that her case was uncommon [15]. The woman had Chronic Kidney Disease (CKD) and her pregnancy had caused a progression of her disease to full blown end stage renal disease.

There are implications for maternal mortalities, especially for women living in rural areas with no access to health promotion information that enables better decision making. The Orlu component of the sample size consisted primarily of patients from the Orlu Senatorial Zone, which is predominantly rural and semi urbanized. A study in 2010 on maternal mortality in the Southeast found an increase and the causes were attributed to a number of factors including sepsis, obstetric hemorrhage, and unscheduled emergencies [16].

Are dialyzing resources at government owned dialysis centers adequate?

Interviews were conducted with the administrators and providers. The unstructured interviews elicited responses in three broad areas namely: resources at the disposal of the treatment centers; the cost of dialysis treatment to the patients, and administrative policies relative to subsidies for indigent patients; and whether gaps existed between available resources and the demand for treatment by both CKD and (ESKD) patients. If gaps existed, how best they thought that the gaps could be closed.

Dr. Anolue, Chief Medical Director of the Imo State University Teaching Hospital in Orlu, leads an institution of highly qualified medical professionals and medical educators. The teaching hospital was established in 2002 and began operations in 2004. It provides medical education and healthcare services. The largest medical facility in Imo state after the federal medical center in the capital city of Owerri, The Imo State University Teaching Hospital attracts patients from all around the state, especially for complicated procedures. Its dialysis center provides life-saving treatments year round, though not without challenges.

According to Dr. Anolue (Interview with Dr. Frederick Anolue, Chief Medical Director of the Imo State University Teaching Hospital, Orlu, on August 31, 2017), most of the patients cannot afford the treatments, but that they are not always turned away for lack of money to pay for the treatments. There is a nominal charge every patient pays to receive service. This amount is insufficient to cover the costs of dialysis treatment, but the hospital provides the treatment anyway and absorbs the unpaid cost. Many patients would be dead were the hospital to be strict about collecting all it is owed in services. Nonetheless, the hospital has records of non-returning patients who didn't come back because they could not afford even the nominal fee assessed for checking in for treatment.

Age; n=59	Patients	(%) of n Number of people in Study
60+	14	2370.00%
50+	11	1860.00%
40+	9	1520%
30+	13	2220.00%
Under 30	12	2030.00%
Total	59	10000%

Table 3: Frequency Distribution of female dialysis patients by age.

On the question of resources at his disposal to effectively provide healthcare services, he averred at being provided resources by the state government, but the resources were not adequate to meet the myriad healthcare needs of users of the facility. He could certainly do with additional resources from anywhere. There were gaps between the resources available to the hospital and the demand for healthcare services by citizens. Collaborative relationships with foreign entities should ameliorate some of the challenges of the teaching hospital, hence the timeliness of the study.

Dr. Achigbu (Interview with Dr. Kingsley Achigbu, Chief Medical Officer, Federal Medical Center, Owerri on September 2, 2017), Chief Medical Officer at the federal government owned Federal Medical Center agreed with Dr. Anolue that the inadequacy of resources was a major problem at public healthcare facilities in Nigeria. At the Federal Medical Center, efforts are made to utilize the resources provided by government in optimal and efficient ways, but there is always a gap in what's available for healthcare interventions and the demand for healthcare services. Being the only federal government owned facility in the city and a major one at that, it often attracts patients from all over the state. The hospital is doing the best it can within the constraints of the resources available to it. It is providing dialysis services to as many people as it can. It has the capability to do more with its highly professional staff, but it needs additional dialysis machines.

Nigeria faces a crisis in preventable deaths from kidney failure. According to The George Institute for Global Health, Nigeria is in a group of countries-the others are Pakistan, India, China and Indonesia-where preventable death rates from kidney failure are high as a consequence of gaps in treatment [17]. Dr. Anyanwu (Informal chat with Dr. Anthony Anyanwu, Head of Nephrology, Federal Medical Center, Owerri on September 2, 2017), in charge of nephrology at the Federal Medical Center, concurred with the need for additional resources for the nephrology unit so it can expand its services.

Is the cost of dialysis affordable to those receiving the treatment?

Both patients and providers believe the cost of dialysis is prohibitive to a majority of patients. A number of the patients from whom an answer was solicited lamented at the high cost of the treatment. This situation is exacerbated by Nigeria's economic recession which created additional economic hardship. Nigeria's economy went into a recession in the latter part of 2014 due largely to a crash in oil prices, Nigeria's main foreign exchange earner and source of 65% of its national budget. As the economy shrank, unemployment went up and the value of the currency dropped. Although the economy of the Southeast is a mix of manufacturing, agriculture and services, the Imo state government depends largely on constitutionally mandated revenue allocations from the federal revenue agency in the capital to fund its budget. As government spending contracted in Imo, business declined, and purchasing power dropped. This is the context in which economic penury became an additional factor which affected the ability of dialysis patients to pay for their care.

At the Ochiedike dialysis center, the third dialysis treatment facility, a treatment costs between N20,000 to N30,000. In a nation where the minimum wage per month is N18,000, the daunting challenge a minimum wage earner would face should they need dialysis treatment can be imagined. The Ochiedike center was established as a 2nd state government operated dialysis services center in 2012. According to Dr. Nwachukwu (Interview with Dr. Nwachukwu, Director of Ochiedike Dialysis Center, on September 3, 2017), the director of the center and

personal physician to the State Governor, the rising cases of kidney disease in the state and consequent increased demand for dialysis services were the motivators for the center's opening. The government subsidizes the center's operations, enabling it to provide services at a cost to patients less than obtainable in private establishments outside the state. Patients who were treated at the Ochiedike facility were generally satisfied with the service, but they complained about the prohibitive costs. These patients were low income class and often relied on partial financial assistance from friends and family to pay for their treatments. Two patients who agreed to extended unstructured interviews received their dialysis treatment at the Ochiedike facility.

What are the personal perspectives of patients on a number matters dealing with their kidney failure, and the impact of the disease on their lives?

This aspect of the study involved one-on-one extended unstructured interviews with willing subjects of the study about their life histories and how they have lived with end stage kidney disease. The purpose of the study was explained to them, particularly that the research was primarily predicated on a needs assessment for intervention programs, and that it was funded by an American based organization interested in possibly intervening to ameliorate the healthcare challenges of indigent patients with chronic kidney disease and end stage kidney disease. The discussion covered a variety of topics including occupation, education, knowledge level regarding kidney health, when the disease struck, economic status and how and who makes payments for dialysis treatments, views about transplants and willingness or otherwise to undergo a transplant, self-medication, and the impact of the disease on their life. There were 4 patients who consented to this phase of the study, and they all signed informed consent forms. They shall be named Patients 1, 2, 3 and 4.

Patient 1's Narrative (Structured interview with Patient 1 carried out on September 4, 2017 in Owerri)

The interview was conducted in the patient's home in Owerri. The patient's wife sat in on the interview. Patient 1 was born in a village named Uratta, a few miles from Owerri city. He is 35 years old and married. He first noticed his illness in October 2016 and sought treatment. He had been a business man who made a minimum of N500,000 (naira) monthly. His life bumbled and he was contented until he got sick and was shocked to discover that it had to do with his kidney. He started dialysis treatment in November 2016. There have been challenges of being able to afford the treatments, but his family (wife and sister) have contributed funds to pay for the treatments. He has spent close to N5 million (naira) so far on his treatments. The treatments are expensive. He knows many who have passed away because they couldn't afford the treatments. He was once hospitalized following a crisis and he later learned that 10 people had died in the course of a few days while he remained hospitalized in the same hospital. They had lacked dialysis treatment for their failed kidneys and had died in consequence of it.

He had to adjust his diet on the advice of his nephrologist. He eats less protein and more of carbohydrates. He has eliminated red meat from his diet. He has since registered in the National Health Insurance Scheme which will pay 50% of the cost of his treatments when the policy becomes effective. Considering the red tape in government agencies, he is not sure of when the policy will go into effect. He self-medicates but only to deal with common ailments-fevers, malaria, headaches. He has not habitually self-medicated with powerful drugs. Patient 1 has post-secondary education. He earned a Diploma in business administration from a university.

Patient 1 is deeply spiritual. He has strong faith that one day he will be healed of his condition irrespective of the treatments he takes. Of the dialysis center where he receives treatments, he spoke of an inconsistency of service quality. "At times, their machines break down," he stated. He is an only son, and the fact that he is childless at the moment bothers him. He wants to be alive to sire a son. He has read about organ transplants on which he is reticent to undergo one. He fears failure of the procedure's aftermath—organ failure and body rejection. He knows of people who underwent the procedure, including a cousin who paid N8 million (naira) to have one done. If given the chance, he would reluctantly agree to a transplant.

Patient 1 opines that a cure-all traditional mixture known as "Agbo" in the Yoruba language is the main culprit in the increase in kidney failure in Nigeria. Its manufacture and consumption is not regulated and the gullible public continues to take the devastating mixture. He stated he was always transfused with blood before his treatments and he's never understood the reason for that. The nurses and technicians have never explained to him why that was necessary.

Patient 2's Narrative (Interview/discussion with Patient 2 carried out on September 4, 2017 in Owerri)

The interview with Patient 2 took place at his home in Owerri. Patient 2 was alone for the interview. Patient 2 is male and 45 years old. He was born at a place called Ezeoke Nsu in Ehime Mbano Local Government Area of Imo State. He is a well-educated man who has an MBA degree. He is currently separated and has one male child. He works in the federal civil service, specifically in the Immigration Service as an Immigration Officer. He makes about N1.2 million (naira) annually. Due to his illness, he has cut back on his hours but still works for the Immigration Service. He was diagnosed with chronic kidney disease and began dialysis in May 2016. He has received some financial assistance from his extended family to help pay for the treatments. He has skipped treatment on occasion due to lack of the wherewithal to pay for the treatments. When this has occurred, he suffered great physical discomfort. The treatment facility where he receives his dialysis has not always had functioning machines. The facility is located in Owerri. Once he had to fly to Abuja to get his treatment because the machines at the treatment center in Owerri did not work. There is no national program to deal with kidney failure and the problem is getting worse according to media coverage of the issue. The government should help with additional equipment and qualified personnel for a new lease on life for patients with chronic kidney disease and end stage kidney disease. There is no philanthropy on these issues that he knows of. The research study is great, and he wishes blessings on the funders for showing concern towards the sick.

He self-medicates only occasionally for minor ailments. He is aware that self-medication with powerful analgesics has been shown to be a contributory factor to kidney damage in some research done in Nigeria. He is aware of the diet regimen of a kidney disease patient, but has not really strictly adhered to it all the time. He has read literature about transplants and will be willing to go through one. He knows of an individual who went through the procedure and is still alive today.

His lifestyle has been deeply impacted by the disease. It has hit him financially in a significant way, and he doesn't socialize anymore. He lives alone and has occasional house help. He has stopped driving.

Patient 3's Narrative (Interview/discussions with Patient 3 carried out on September 5, 2017 in Owerri)

Patient 3 is a 45 year old male who is a native of Umunoha in

Mbaitoli Local Government Area of Imo State. He is married with 4 children. Following secondary school, he started a business career then moved to Libya where he continued with his business career until he got sick and returned to Nigeria a year ago. He has been receiving treatment at a facility in the state. The financial outlay for the treatments has been enormous and he has gone into debt to raise money for the treatments. At times, friends and family have assisted financially. He has no income at the moment because he cannot work, as a consequence of the debilitating effects of the disease. He is aware of the diet regime of end stage kidney patients and adheres to it. He has never engaged in self-medication except for the occasional minor ailment such as headaches or fevers. He is aware of the dangers of taking traditional medicines (Agbo). He had taken some of it years ago before the onset of his disease.

Patient 3 states his lifestyle has changed significantly. He is not as strong as he used to be. He was once an energetic businessman who traveled abroad for business deals before settling in Libya. He has mostly confined himself indoors now and does very little socializing. He worries and stresses a lot about his finances and situation and this makes his condition worse. He does not know of anyone who went through a kidney transplant. He is amenable to do it if he can be sponsored by a philanthropist. He does not know of any family members who would donate a kidney, but it can be worked out if he is sure of support for the procedure.

Patient 4's Narrative (Interview/discussions with Patient 4 carried out on September 5, 2017 near Okigwe)

Patient 4 is a 66 year old man from the neighboring state of Abia but who receives dialysis treatment at a facility in Imo State. He was interviewed in his home at a village near Okigwe on the border between Abia and Imo states. Okigwe is the 3rd largest town in Imo State. Patient 4 is university educated and holds a diploma in business. He worked in the aviation industry. He is married with grown children. He was first diagnosed with chronic kidney disease in 2016. His condition quickly deteriorated and he started receiving dialysis treatment soon after. The treatments have been financially onerous. His son pays for the treatments. He has on occasion received some assistance from a friend or 2. The dialyzers do not always work at the facility from where he gets his treatment. The facility ought to do something about it. He has been rescheduled a number of times when he needed the treatment badly.

He has self-medicated before and has taken traditional medications before. He knows of an individual who has gone through a transplant procedure before. He would be willing to go through one if he gets a sponsor. Family members are prepared to be the donor party in the procedure. The disease has changed his life in a dramatic way. He is no longer active in a number of things he once participated in. He does not socialize as he used to. He is sicker than he has ever been. There ought to be government intervention to make the treatments affordable, and for the facilities to have reliable machines that do not break down all the time.

Results and Discussion

The analyses of the study justify the following recommendations:

Equipment Assistance

Providers and administrators stated being constrained by the inadequacy of resources in the care given to CKD and ESKD patients. The demand for healthcare services outpaces the medical resources needed to meet that demand. The result is an allocation of healthcare resources based on priorities. As kidney disease affliction

and mortality rates are relatively lower than the big killers-malaria, perinatal and maternal conditions and communicable diseases-there is a corresponding lower allocation of public funds and other healthcare resources to deal with it. Patients feel the effects of the inadequacy of resources when their dialysis treatments are cancelled or rescheduled as a result of broken down machines. Providing treatment centers with additional dialyzers will assist immensely in the care of patients.

Funding Subsidies or Low Income Patients

Most patients find the treatment costs prohibitive and have consequently not sought regular dialysis treatment. The Teaching Hospital has provided some subsidy on a case by case basis. There is no comprehensive subsidy regime that operates on a model with criteria that qualify low income individuals for government subsidy. In the context of general resource constraints, no treatment center is able to offer sustainable subsidies or discounts. The facilities must explore other streams of revenue to be able to do that, but none of the facilities has any such plans. Most patients pay for their treatment through a mix of self-pay, borrowing, and assistance from friends and family. There are no national fund drives for CKD and ESKD patient assistance as exist in Western nations. Perhaps an effort of this kind could be an effective tool to raise funds to help low income people living with CKD and ESKD. Funding organizations in the West can also design low income/indigent subsidy assistance programs with strict guidelines and controls to prevent fraud.

Establishment of a Transplant Program

Transplants are expensive procedures beyond the reach of most patients in the study. Not everyone will be the beneficiary of a transplant. Should a transplant program be interested in intervening to save lives, a criteria will have to be developed to qualify people for the procedure. Suggested factors in developing criteria could include age, income, and probability of surviving the procedure following a clinical assessment. Extremely indigent individuals deserve favorable consideration provided they score highly on the age and survivability factors.

Conclusion

The study was conducted to look into a number of questions pertaining to patients from Southeastern Nigeria with chronic kidney disease and end stage kidney disease, to wit: what the frequencies were by gender of end stage renal failure in patients on dialysis in government owned treatment centers; what the frequencies were by age of end stage renal failure in patients on dialysis in government owned treatment center; whether dialyzing resources at government owned dialysis centers were adequate; whether the costs of dialysis were affordable to those in need of it; and what the personal perspectives of patients were on a number matters dealing with their kidney failure, and the impact of the disease on their lives.

The rationale for the study was to examine healthcare access issues relative to economic status and to make a determination as to qualifying criteria for kidney transplantation funded by philanthropy. The methodology was a blend of descriptive, document review, analytical and statistical research. Structured and unstructured interviews were conducted of healthcare providers, administrators and patients. Historical patient data was collected from dialysis treatment centers. Finally, extended unstructured interviews were carried out with a randomly selected number of patients for the purpose of gaining insights into their perspectives on a number of matters dealing with their condition and the impact of the disease on their lives.

The findings showed more men were on dialysis than women by a ratio of more than 2:1. Men from 40 years and above made up 61% of

patients. Among women, 42% of patients were below 40 years of age. This statistic is significant in view of its implications for such a demographic group considered highly fertile. The mean age for all patients was 46.1 ± 13.9 and 46.1 ± 1.98 at 95% confidence interval. Resources for dialysis (machines and related materials) were inadequate. Gaps existed between the demand for dialysis services and actual services provided. Patients had to deal with treatment rescheduling and cancelled appointments as a result of broken machines.

Providers and administrators described the economic statuses of most patients as low income and poor and unable to afford dialysis treatments. Treatments were thus irregular, and some were never seen again after the first treatment. Patients averred that the treatments were expensive and unaffordable. Patients who consented to extensive unstructured interviews were unanimous about the problems at treatment centers relative to malfunctioning machines and the prohibitive costs of treatment. They paid for their treatments through a mix of self-pay, help from friends and family, and by borrowing. Their quality of life had diminished as a consequence of the disease. They know people who went through kidney transplants. They were prepared to go through the procedure but can't afford it.

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