

Challenges of kidney care in a resource poor nation: A study of private kidney care centre in Nigeria

Umezurike H. Okafor, I. Ekwem¹, F. S. Wokoma²

Department of Medicine, Enugu State University, Teaching Hospital, Parklane, Enugu, ¹Amanze Kidney Care Centre, Ebony Hospital Ltd, ²Renal Unit, University of Port Harcourt Teaching Hospital, Port Harcourt, Rivers State, Nigeria

ABSTRACT

Background: Resource poor nations are froth with various confounding challenges in their social, political, financial, physical and healthcare needs. Care of patients with health problems, including those with kidney related disorders is associated with many challenges. This study is aimed to highlight the challenges of kidney care in a resource poor nation.

Materials and methods: The activity of a private kidney care centre in Nigeria was reviewed from establishment to 6 months of operation. The details were documented and analysed.

Result: The commencement of the kidney care centre was delayed as a result of financial and bureaucratic challenges. A total of 64 patients were seen during the period studied, 59.4% were male and the mean age was 48.2±5.5 years. 40.3% of the patients had chronic kidney disease. Twenty patients had haemodialysis however only 2 patients sustained the dialysis for the period studied. Most patients were unable to adhere to medication. The centre still depend on the parent hospital financially. **Conclusion:** The challenges of kidney care in resource poor nation are numerous and multifactorial.

Key words: Challenges, kidney care, kidney disease, resource poor nations

Address for correspondence:

Dr. Umezurike H. Okafor,
Renal Unit, Department of
Medicine, Enugu State University,
Teachong Hospital, Parklane,
Enugu, Nigeria
E-mail: umehughes@yahoo.com

INTRODUCTION

Economies of nations are divided into various groups ranging from low to high income nations according to their gross national income (GNI) per capita. Using the World Bank Atlas method, the groups are calculated as follows- low income nations has GNI of \$975 or less, lower middle income has GNI of \$976-\$3,855, upper middle income nations has GNI of \$3,856-\$11,905, and high income nations have GNI of \$11,906 or more. Much of these resource poor nations are resident though not limited in sub-Saharan Africa, a region that is home to over 500 million people, from Nigeria to Liberia, Sierra Leone to Congo DR, Sudan to Gabon.¹ Nigeria with a population of about 150 million and is ranked among the resource poor nations with GNI less than \$1000 per capita.² The health care challenges facing these poor and less developed countries are many in number, broad in scope, and fundamental in nature. The global community, including governments, international

organizations, non-governmental organizations, private business and individual citizens, seek remedies for the many issues that impede access to quality health care.³ The resource poor nations have various peculiarities that impede health care and its development.

Chronic disease now makes up almost one-half of the world's burden of disease. Thus, creating a double burden of disease when coupled with infectious diseases, they are still the major cause of ill health in developing countries. These chronic diseases include cardiovascular, metabolic, kidney, neurological, malignant, collagen vascular and other inflammatory diseases.^{4,5}

Projections made by the World Health Organization (WHO) suggested that by 2015, deaths from chronic diseases, such as cancer, hypertension, cardiovascular diseases, and diabetes-will increase by 17 percent, from 35 million to 41 million.⁴ Treatment for end-stage kidney failure has a substantial impact on Federal resources for health care. In America, the 1972 Social Security Amendment (Public Law 92-603) instituted federally financed health care coverage for dialysis and renal transplantation, effective July 1, 1973. A recent projection of medicare expenditure is estimated to be 3.5 trillion dollars by 2013.⁶ Although this patient population made up only 0.6 percent of the total Medicare population in 1994, it consumed 5.1 percent of Medicare expenditures.⁷ The increases in the cost per patient have been modest,

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but the driving force behind the growth in these expenditures has been the growing number of patients. The resource poor nations obviously lack the financial weight and organizations needed for the management of such chronic conditions amongst populations. Apart from the high cost of kidney care and the prevailing low socio economic state, the management of kidney diseases especially end stage kidney diseases in resource poor nations is froth with diverse challenges. These challenges contribute to the poor outcome of kidney disease in this environment. This study is to highlight the challenges of kidney care in a resource poor nation using a private kidney care centre in Nigeria as a surrogate.

MATERIALS AND METHODS

This is a prospective study carried out in a private kidney care centre in Port Harcourt Rivers state Nigeria. The various stages in the establishment of the kidney care centre including the planning, funding, procurement and installation of the equipments in the centre were documented. The operations of the centre in the first 6 months were also documented. The data obtained were entered in a spread sheet and analysed using Statistical Package for the Social Sciences (SPSS) 15.0. The frequency distribution and means of various variables were computed.

RESULTS

The Kidney Care Centre is an offshoot of the desire of a newly qualified nephrologist to improve kidney care in his environment. This led to a relationship with a private medical establishment that had the resources and interest in kidney care, and could help the nephrologist in fulfilling his desire.

The site for the centre was on the second floor of the hospital. The space was structured to accommodate a consulting room, changing rooms, store, reception, water treatment unit, and 5 haemodialysis machines. The country representative of NIPRO was contacted to supply the equipments. The source of water and electricity supply was from the hospital. Two staff nurses and a technician were recruited and retrained locally for a month. The parent hospital agreed to provide the laboratory and imaging support services.

The delivery and installation of water treatment unit (WTU) and a haemodialysis machine took 6 months due to bottlenecks met with various government agencies responsible for importation in the country. The centre commenced operation on 1st July 2008. Two more machines (2008 models) were installed 2 months later but the use was delayed because of poor technical knowledge of the machine.

A total of 64 patients were reviewed during the period. Thirty eight (59.4%) were males. The mean age was 48.2±5.5 years.

The distribution of diseases seen within the period is as shown in Table 1.

Twenty patients consisting of 18 patients with end stage renal disease (ESRD) and 2 patients with Acute renal failure (ARF) had haemodialysis. The distribution of the frequencies of hemodialysis sessions is shown in Table 2. Only 2 patients sustained hemodialysis twice weekly for 2 months. Financial constraint was the major limitation for hemodialysis in over 80% of patients.

The centre at the end of 6 months operation is not financially independent yet, and is still being sustained by the parent hospital for its financial requirements and maintenance of functioning of the kidney care machinery.

DISCUSSION

Provision of healthcare in most developing/resource poor nations is determined directly or indirectly by the government, and the very few privileged rich individuals or organizations. This is because they have the financial capacity and privilege to access various public and private funds marked for health care. The prevailing high level of poverty among the populace in general and also among

Table 1: Distribution of diseases seen in the patients of the study from July to December 2008

Disease	Number	Percent
Chronic kidney disease stage 1 to 4	8	12.5
Chronic kidney disease stage 5 (ESRD)	18	28.1
Hypertension (NKF)	11	18.2
Urinary tract infection	9	14.1
Diabetes mellitus (NKF)	9	14.1
Acute renal failure	4	6.3
Nephritic syndrome	2	3.1
Nephrolithiasis	2	3.1
Adult polycystic kidney disease	1	1.6
Total	64	100

ESRD – End stage kidney disease, NKF – Normal kidney function

Table 2: Distribution of total number of dialysis sessions in the patients in the study

Total number of hemodialysis sessions	No. of patients	Percent
1	9	45
2	3	15
3	1	5
5	3	15
6	1	5
8	1	5
10	1	5
>10	1	5
Total	20	100

the health care professionals has perpetuated this state. The funding of health by non governmental agencies or insurance is either nonexistent or at rudimentary/moribund state and usually poorly managed. This is consistent with this report in which the nephrologist though having the interest and knowledge lacked the financial strength to set up the kidney care facility. Also, access to loan in some of these resource poor nations including the index nation is determined by the financial state of the individual.

There is global lack of interest in investment on kidney care by most profit oriented organizations. This probably is because the establishment of kidney care facility is expensive, and its operation quite demanding. There are few companies producing dialysis equipments and consumables, thus perpetuating the high cost of the materials especially in these nations where sales are few. This state has grave impact on the poor nations as in the surrogate centre where the cost of a dialysis machine was thirty thousand dollars, Reverse Osmosis (RO) machine was forty thousand dollars, installations was ten thousand dollars. Furthermore, these costs excluded accommodation, utilities, laboratory and imaging support services, consumables, training and other miscellaneous charges, thus increasing the financial burden all the more. Also the public utilities are unreliable and their provisions are depended on private supplies, further increasing the cost of operating the centre. However, the patronage of such facility in most poor and developing nations is poor, limiting the profitability and sustainability of the facility. This poor patronage is multifactorial.

Most patients with chronic kidney failure in sub-Saharan Africa cannot access renal replacement therapy because of the cost. For example, the cost of a session of hemodialysis in Nigeria is US\$150, which is twice the minimum monthly wage paid to federal government workers. The estimated annual cost of dialysis in Africa varies between US\$8000 to 12,000, which far exceeds the gross domestic product per capita of most of the African countries.^{8,9} Funding for renal replacement therapy (RRT) is primarily private in much of Africa, with the government providing therapy for a small number of patients in few countries.¹⁰ In many African countries, chronic dialysis is not sustainable, with patients unable to afford dialysis beyond the first 2 to 3 months. In a cohort of Nigerian patients with ESRD, less than 2% were still on dialysis 12 months later.^{11,12} This was also typified in the case report in which of the 18 patients who had ESRD, only 2 patients had regular twice weekly hemodialysis, and one patient could afford renal transplant after 6 months. Most patients were not well investigated and compliance to medications' was poor due to non affordability by the patients. Thus poverty is a great limitation to both establishment and sustenance of kidney care in poor and developing nations.

Though early referral and presentation of chronic renal failure (CRF) patients' to nephrologist has been recommended to reduce complications, morbidity and early mortality, many patients present late and are usually delayed in the first point of presentation before being referred to a nephrologist.⁸⁻¹⁰ About 70% of patients with chronic kidney disease in this report presented in end stage kidney disease requiring renal replacement therapy. This has a negative impact on the patient outcome. Though the late presentation in this study has been attributed mainly to financial constraint, other studies have attributed it to a lot of factors which include ignorance, illiteracy, lack of health facilities and cultural and religious beliefs.^{11,12}

Lack of adequate and appropriate health facilities including health care personnel poses a great challenge to care of patients with kidney related ailments in most developing countries. This has encouraged proliferation of various pseudo/quack health facilities found in these countries. Nigeria with a population of about one hundred and fifty million has prevalence of chronic kidney disease (CKD) of about 10%, high burden of diabetes mellitus, hypertension, human immunodeficiency virus infection and other infections causing kidney diseases. However, there are about one hundred nephrologists, fifty hemodialysis centers and only two active kidney transplant centers. The few available kidney care facilities are located in the urban areas and most do not have the services of a nephrologist. This has further encouraged the patients to patronize the readily available health centers' irrespective of their inadequacies in kidney care. The kidney care facility in this report is privileged to have a nephrologist attached to the centre, but it is still located in an urban area and many patients travel long distances to reach there. This maldistribution of these facilities is perpetuated by lack of basic infrastructures in the rural areas.

Kidney care in resource poor nations also lack facilities and expertise in various support services. The laboratory and imaging department in this report and various other centers in developing nations are sparsely equipped, and the technologists are not versed in kidney and kidney related conditions. There are few histopathologists available to analyse the biopsy specimens, and their evaluations are restricted to light microscopic studies, with advanced electron microscopy and immunohistochemistry techniques lacking. The light microscopic report of the only biopsy done took 4 weeks to be ready, and was obtained from a tertiary health centre in same city. There are few professionally trained renal nurses and most centers, including the centre in this study, usually organise ad hoc and accelerated training for nurses. Technical support is lacking in most of these countries leading to poor maintenance of these equipments. This has caused frequent breakdown and interruption or delay in operations of the kidney care centers, as also seen in this study.

The government in most resource poor nations has not shown interest in kidney care as compared to the developed nations. Treatment and funding of kidney care is not subsidized or supported in most poor nations. The health insurance schemes are nonexistent and where they are available they do not include kidney care in most of their packages. There is no government policy encouraging development of kidney care in these nations. This was demonstrated in this case study by difficulties encountered in the delivery of the imported kidney care facilities as a result of activities of various agencies of the government. Support from government in training and retraining of kidney care personnel is also lacking in most of these poor nations. The National Association of Nephrologist, a professional body in Nigeria consisting of kidney care medical personnel had a summit in 2003, and the way forward for kidney care in the country was extensively discussed, and decisions were submitted to the government. However, there has not been response or action from government so far.¹³

The International Society of Nephrology is the only nongovernmental/charity organization that has shown much interest in the development of kidney care in resource poor nations through their various activities like the COMGAN programs, fellowship training, sponsorships for conferences, researches and seminars for young nephrologist, sister centres, etc.¹⁴ Kidney care in developing countries has received minimal or no support from other nonprofit oriented, nongovernmental organizations. However the national kidney foundation has recommended that government should partner with nongovernmental organizations and industries to prevent/alleviate the siege posed by chronic kidney diseases in resource poor nations.¹⁵

In conclusion, kidney care in resource poor nations is froth with challenges emanating from various economic, political and social factors. Thus, there is need to reorient the various health sectors, industries, governmental and nongovernmental organizations towards support for kidney care in resource poor nations.

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