



REVIEW ARTICLE

# Unaffordability of renal replacement therapy in Nigeria



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Available online 18 January 2016

## KEYWORDS

renal replacement therapy;  
resources;  
unaffordability

**Abstract** With the increase in epidemic proportions of diabetes worldwide, the number of patients who will require renal replacement therapy (RRT) will be a great challenge to the health infrastructures of developing countries such as Nigeria. Because those mostly affected are in the economically productive age group, a vicious circle is established whereby those who keep the economy going are the same people affected. Secondary and tertiary care of chronic kidney disease involving RRT would exact disproportionate toll on the income of patients in the developing world where patients pay out of pocket for their own care. Whilst there is an increase in the number of facilities offering RRT, there is no commensurate sustainability of care either by the patients themselves or even by the government. The level of unemployment is increasing. Kidney transplantation is out of reach in addition to the cost of post-transplant care, which includes hospitalization and immunosuppressive medications. Most of the end-stage kidney disease patients who enlisted in our dialysis program were unable to get or sustain adequate hemodialysis. The data also showed that more men were dialyzed at our facilities over the period under review and the age distribution has not changed much over the decade. From this dismal picture in the last decade emerges a series of questions as to why this is so and what must be done to increase access to RRT. Prudent fund management and cost containment, local manufacture of dialysis materials and nongovernmental sources of funding are means of driving down the cost of dialysis. In countries where drugs and equipment for health services are locally manufactured, such as India and other countries, the cost of health care is more affordable than in countries such as Nigeria where these are imported.

在全世界，糖尿病的盛行率與日俱增，然而對於發展中國家如尼日利亞，基礎醫療架構並不足以應付患者對腎置換療法 (RRT) 的需求。本地民眾必須自費支付自身的醫療費用，但其收入水平遠不足以負擔慢性腎病二級與三級照護所需的 RRT。即使目前 RRT 設施已有所增加，但無論是患者或政府均難以維持治療的長期實施。此外，腎臟移植所需的資源在本地更是相當之有限。在被我們納入透析計劃的末期腎病 (ESKD) 患者間，大多數並未能接受足夠或持續的透析治療。過去十年間，在我們設施內接受透析的病人中，年齡分佈大致穩定，且男性佔較多數。目前，我們正

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研究如何能促進 RRT 普及實施的方案。透過謹慎的理財與成本控制、透析物料的本土生產、及非政府資金的運用，透析的相關費用可望得以降低。目前，發展中國家如尼日利亞的藥物與醫療器材大多仰賴進口，因此相關物資的本土生產是降低醫療成本的可行方案。

The burden of chronic kidney disease in the developing nations has engaged the attention of policy makers, health care providers, and care givers in the developing world for some time now, especially against the backdrop of economic recession and prevalent poverty. Furthermore, the population most affected by chronic kidney disease (CKD) are those most economically productive and on whom substantial investment has been made, due mostly to the epidemiological pattern of CKD in the developing world.<sup>1</sup> The World Health Organization recently listed CKD among noncommunicable diseases that deserve attention and has been at the vanguard of its prevention and treatment.<sup>2</sup> At present, regardless of the cause of CKD, most patients present very late and the economic burden is nothing less than catastrophic for them and their relatives.<sup>3</sup> Renal replacement therapy (RRT) modalities such as dialysis and transplantation remain largely out of reach for most patients, even the most relatively well-off.<sup>4,5</sup>

The prevalence of CKD is 8–16% globally, and the number of patients on RRT is about 1.4 million in 2002, and growing at 8% annually, it was estimated to be over 4.902 million by 2010.<sup>6–9</sup> With the increase in epidemic proportions of diabetes worldwide, the number of patients who will require RRT will be a great challenge to the health infrastructures of developing countries such as Nigeria. Because those mostly affected are in the economically productive age group, a vicious circle is established whereby those who keep the economy going are the same people affected.<sup>10</sup>

Much is being written about global financing of health and catastrophic health spending in the developing world, in which individuals and households are rendered impoverished by health spending. This would appear to be more prevalent in the rural areas where the poorest in the society live.<sup>11–13</sup> Onwujekwe et al.,<sup>12</sup> for instance, found that a monthly expenditure of \$19.66 in certain communities in Nigeria, an amount that is 40% of total nonfood expenditure, rendered 27% of households impoverished. Urban dwellers spend even more because the cost of living and health is far more prohibitive.

Secondary and tertiary care of CKD involving RRT would exact a disproportionate toll on the income of patients in the developing world where patients pay out of pocket for their own care. In a weak economy and poor primary health care infrastructure for screening and prevention, RRT adds to the burden of care and dislocates individual and family finances.

Ten years ago, there were only 27 dialysis centers and one transplant center in Nigeria,<sup>9</sup> but today there are about 80 established hemodialysis (HD) centers and more than five transplant centers, both public and private. So whilst there is an increase in the number of facilities offering RRT, there is no commensurate sustainability of care either by the patients themselves or even by the government. The level

of unemployment is increasing. Kidney transplantation is out of reach of many patients, especially when it costs a large lump sum to get the surgery done, in addition to the cost of post-transplant care, which includes hospitalization and immunosuppressive medications.<sup>14</sup>

It is almost 20 years since affordability of RRT was reviewed in our center, and it becomes necessary to revisit the matter again. The last study from our center was a 5-year review that concluded that over 80% of patients could only dialyze for about 3 months.<sup>15</sup> This means that survival of patients with end-stage kidney disease was abysmal. Prior to this, a similar study had found that about 70% of patients could only afford dialysis for < 1 month.<sup>16</sup> Very recently, a study from another region of the country also concluded that patients could dialyze only for about 8 weeks.<sup>17</sup> We have undertaken a 10-year review to determine whether there have been a change in the last decade due to the incremental fees of dialysis and the economic changes in the country.

The last 10 years have witnessed an increase in the number of dialysis centers. This means that there have been huge investments both by the government and the private sectors. The gross domestic product (GDP) has more than doubled since 2005, from \$112 billion to \$262 billion in 2012; and the gross national income per capita from \$772 to \$1426.<sup>18</sup> These figures and statistics should ordinarily yield health benefits in terms of infrastructural development and increased capital outlay for health spending.

In the last 10 years, the number of HD machines has increased from 5 to 15 in Ibadan, and the cost of HD has only marginally increased from N25,000 (\$125) to N30,000 (\$150). There are now three dialysis centers in Ibadan, one public and two private. We expected the number of patients admitted for maintenance dialysis to increase significantly in the last 10 years, and therefore, we were interested in how long patients can sustain RRT.

Records of all patients with CKD who dialyzed in the unit from 2004 to 2013 were abstracted. The variables of interest were age, sex, underlying kidney disease, number of dialysis sessions and duration of dialysis. All patients with acute renal failure or acute kidney injury were excluded. Our focus was primarily to explore the duration or number of dialysis patients can afford before dropping out of care or death. We also assume that the rest who did not ask to be transferred out nor had transplantation dropped out of care for financial reasons.

A total of 956 patients were dialyzed over a period of 10 years. There were 371 women (38.9%) and 585 men (61.1%). Hypertensive nephrosclerosis, chronic glomerulonephritis (CGN), diabetic nephropathy, and obstructive uropathy (benign prostatic hypertrophy, prostatic cancer and urethral obstruction in males and pelvic tumors like cervical cancer in females) account for 42.0%, 30.1%, 9.5%, and 7.0% respectively. Human immunodeficiency virus-

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