

Haemodialysis: An Option for the Treatment of Renal Failure in F.C.T., Nigeria

Yayok, R. P., Umar, A., Oyewole, W. R., Olusanya, M.O., Shinaba, S.T., Atafo, C. I.

Abstract:

Introduction: Haemodialysis has been shown to offer a high quality of life to patients in the F.C.T. It is an option that is well chosen and acceptable to most patients because of easy access. This research reports the findings of a survey in the F.C.T covering the haemodialysis centres used for the treatment of renal failure. This study evaluates the effectiveness and adequacy of haemodialysis as an option for the treatment of renal failure.

Methods: A ten multi-answered questions were asked of several groups of dialysis professionals and patients covering a population of 350 consisting Nephrologists, Nephrology Nurses and Patients. Simple tables, percentages and pie charts were used in analysing the data.

Results: The results shows preferences of the options of haemodialysis which ranked better than other option with 100% from all the respondents while kidney transplant and peritoneal dialysis carries 51.14% and 42.86% respectively. The reasons adduced to the preference of the option include accessibility, cost effectiveness and reliability. Factors affecting the use of the option are enablers, barriers and contraindicators.

Conclusions: Early detection of renal problem, frequent haemodialysis and education are remedial palliatives in reducing renal problem while good and adequate haemodialysis by patients help prolong their lifespan.

Key words: Haemodialysis, Kidney Transplantation, Peritoneal Dialysis, End Stage Renal Disease and Adequacy of Dialysis.

I. Introduction

The incidence of End Stage Renal Disease (ESRD) is becoming alarming and uncontrollable in Nigeria¹. The World Health Report and Global Burden for Disease Project (2004) shows that diseases of the kidney and urinary tract contribute to the global burden of diseases with approximately 850,000 deaths every year and 15,010,167 disability adjusted life years. This represents the 12th cause of death and 15th cause of disability respectively. "In Nigeria, the situation is such that Chronic Kidney Diseases (CKD) represent about 8%-10% of hospital admission"^{2,3}. Recent studies conducted shows that "over 22 million Nigerians suffer from kidney problems"⁴. This may be a huge under-representation of the true situation as there are no registers and reliable data bank.

"It is well known that CKD is under-recognised and under-diagnosed; patients with End-Stage Renal Disease (ESRD) are thought to represent the tip of the iceberg of the entire burden of CKD"⁵. This is more so in developing countries where patients often present late or not at all to health facilities for several reasons which range from prohibitive cost of health care services to use or alternative treatment⁶ like spiritual healing and traditional native healing.

The three most common options of Renal Replacement Therapy (RRT) are haemodialysis, peritoneal dialysis and transplantation⁷. In Sub-Saharan Africa including Nigeria, haemodialysis is the most common modality of RRT. "This is due to the extremely exorbitant cost, lack of facilities, man-power and the predominantly urban location of the renal care centres"^{8,9,10}. A global study shows that 24% of all haemodialysis patients are treated in the United States and 19% in the European Union¹¹.

Haemodialysis is a form of treatment where accumulated solutes and fluids are removed from a patient who has total or near total loss of kidney function using haemodialysis machine¹². It is indicated for the treatment of acute kidney injury, acute exacerbation of chronic renal failure and ESRD. "Urea Reduction Ratio (URR) is a measure of adequacy of delivered dose of dialysis expressed as a percentage reduction in blood urea level after a session of dialysis which is mathematically related to Kt/V. Kt/V is recommended as the best measure of dialysis adequacy"¹³ URR is the most utilized because of its simplicity with both methods having similar predictive power in terms of patient outcome¹⁴. A URR of 65% which corresponds with Kt/V of 1.2 is the minimum acceptable dose in the standard thrice weekly haemodialysis if the residual kidney function is <2ml/min/1.73m (Kidney Disease Outcome Quality Initiative)¹⁵.

II. Haemodialysis In Nigeria

The number of haemodialysis patients in Nigeria is estimated by experts at 50,000 with 15,000 patients developing kidney disease annually with only 76 dialysis units to serve the affected population size in Nigeria. Surveys in the country indicate private sectors operate 34 of the dialysis centre while the government operates 42. In the City Capital where this survey was carried out shows that there are 13 dialysis centres; (8 private and 5 public). Patients with ESRD are required to undergo three dialysis sessions a week at a cost of between ₦25,000 (\$156) and ₦30,000 (\$187) per session. This leaves several patients with high out-of-pocket money for healthcare services and at the mercy of family members and well-wishers^{9,16}.

Design and Study Area:

Survey design was used for the study. There are thirteen hospitals in Federal Capital Territory with haemodialysis units, both private and public were used for the study.

Population:

The population covers the nephrologists, nephrology nurses and patients in these hospitals consisting of Nephrologists (10), Nephrology nurses (40) and patients (about 300). The study therefore covers a total population of 350 persons in a period of 5 years (2008-2013). The population is mainly those persons directly involved in haemodialysis both clinical staff and patients. This becomes necessary because of the type of information that is needed for the research.

Sampling and Sampling Technique:

The sampling techniques of random, multistage and stratified were adopted. The population was arrived at through a simple survey at random basis to get a total of 350 persons.

Research Instruments:

Sample structure questionnaires consisting of about 10 multi-answered questions were used. Personal interview and contacts also helped as instruments. Some of the questionnaires were delivered personally while others were sent to the respondents through e-mails. All the questionnaires administered to the 350 persons were returned.

Validity and Reliability:

The instruments were given to expert Nephrologists, Nephrology nurses as well as Patients that were literate enough to answer the questions, to ensure consistency and validity of instruments, different classes of patients of different occasional skills and sexes were taken.

Data Collection Procedures:

The primary data was collected through questionnaires and personal interviews from the population. There was special information on haemodialysis in Nigeria from the renowned Nephrologists¹⁷ and a New Zealand National Survey Renal Journal, 2014,¹⁸ that helped in giving statistics of haemodialysis centres in the F.C.T.

Method of Data Analysis:

Data was analysed through simple percentages, tables, pie charts and descriptive cum-inferential statistical methods with the aid of Statistical Package for Social Science (SPSS). These methods were important because the research information were on the outcome of the survey more than establishing variables.

Research Questions:

The following research questions were used to establish the respondents' preference and choice of haemodialysis as a method of renal treatment:

- a) How many options of renal treatments are available in F.C.T?
- b) Which of the options is most preferred by the respondents?
- c) What reasons are adduced to patients' choice of haemodialysis as a renal treatment method?
- d) What are the factors and indices affecting haemodialysis?
- e) How adequate is haemodialysis and how does it affect the life span of patients?

III. Results- Evaluation Of Research Questions

Question 1 and 2: How many options of renal treatment are available in the F.C.T and which of the options is most preferred?

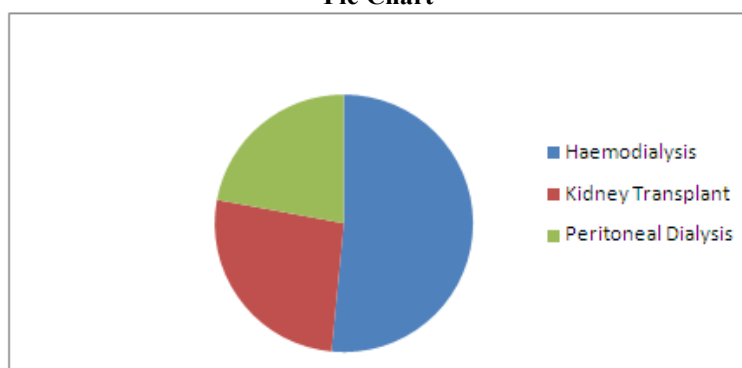
A survey of the city centre amidst the selected sample shows the following options of renal treatment: Haemodialysis; Peritoneal Dialysis and Kidney Transplantation.

Table 1: Showing options of renal treatment

Options	Class of Respondents				Degree
	Nephrologists	Neph. Nurses	Patients	%	
Haemodialysis	10	40	300	100	185.57
Peritoneal Dialysis	10	40	100	42.86	79.53
Transplant	10	40	150	51.14	94.50
			Total	194	360

Source: Field survey 2014

Pie Chart



The table and pie chart shows that there are three options of Renal Replacement Therapy but haemodialysis is ranked first by all the respondents placing it at 100%.

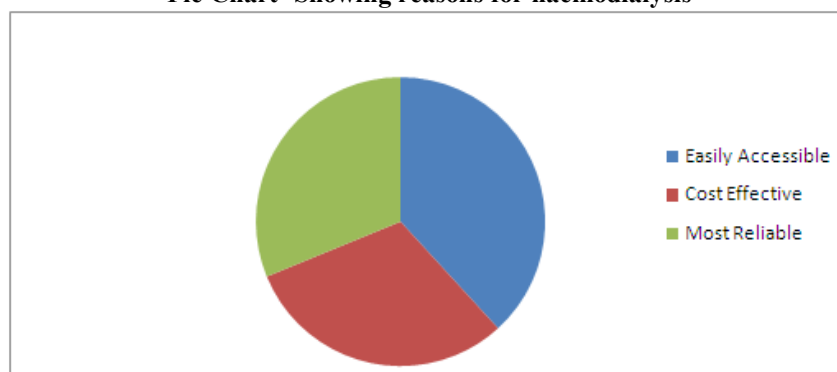
Question 3: What are the reasons adduced for patients choice of Haemodialysis as a Renal Treatment Method?

Table 2: Showing reasons for the option of haemodialysis

Reasons	Respondents Preference				Degree
	Nephrologists	Neph. Nurses	Patients	%	
Easily accessible	10	40	250	85.71	185.57
Cost Effective	10	30	200	68.57	79.53
Most Reliable	8	35	202	70.00	94.90
			Total	224.28	360

Source: Field Survey, 2014

Pie Chart- Showing reasons for haemodialysis



The table shows that haemodialysis is easily accessible, cost effective and most reliable. However, accessibility ranks first because all classes of people can access it despite the minor hiccups. The cost even though high is the only less expensive option for now.

Question 4: What are the factors or indices affecting haemodialysis?

The analysis put the factors into the following classes; Enablers, Contraindicators and Barriers. Table 4 shows the classes and explanation of the factors.

Table 3- Show factors affecting haemodialysis with their characteristics

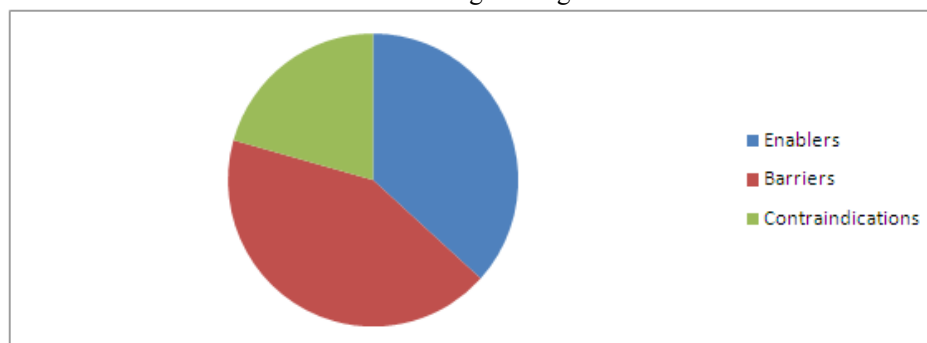
Factors	Indices/ Characteristics
Enablers	<ul style="list-style-type: none"> • Creating awareness on the disease conditions; • Early referrals; • Family Support; • Health Insurance coverage; • Personal knowledge and continuous health education.
Barriers	<ul style="list-style-type: none"> • High cost of dialysis; • Lack of knowledge/ poor health literacy; • Accessibility to health facilities; • Low income; • Cognitive Belief; • Non-challant attitude by the Government; • Patient denial of disease condition; • Adducing disease condition to witchcraft
Contraindicators	<ul style="list-style-type: none"> • Children; • Age; • Severe hypotension; • Severe haemorrhage tendencies; • Mental problems; • Severe anaemia; • Advanced malignant tumors; • Severe myocardial infarction/ Arrhythmia; • Non-English speaking.

The ranking of these factors by the respondents is as follows:

Table 4 – Ranking of Factors

Factors	Respondents				
	Nephrologists	Neph. Nurses	Patients	%	Degrees
Enablers	10	40	200	71.43	132.35
Barriers	8	32	250	82.86	153.53
Contraindicators	10	30	100	40.00	74.12
			Total	194.29	360%

Pie Chart- Showing ranking of factors.



Barriers to haemodialysis are ranked first with 82.86%, followed by Enablers with 71.43% and lastly by Contraindicators with 40.00%. This is due to the fact that the respondents have great limitations to haemodialysis than anything else because of the high cost.

Question 5: How adequate is haemodialysis and how does it affect lifespan?

Adequacy in haemodialysis implies the delivery of a dose of dialysis considered high enough to promote an optional long term outcome.

The adequacy of haemodialysis is measured in Urea Reduction Rate (URR), which is expressed in percentage and mathematically as Kt/V . The universal, acceptable standard of adequacy is a Kt/V of 1.2 which indicates a URR of 65%. Kt/V is the minimum acceptable dose standard thrice daily. The survey from the haemodialysis centres indicates that the adequacy rate ranges on an average URR of 63% which is a good percentage comparable to the World’s standard. This therefore shows that haemodialysis adequacy makes the patients healthier, thereby enhancing their lifespan.

IV. Discussion

The paper presents a survey of haemodialysis in F.C.T in Nigeria which has 13 standing haemodialysis centres with 5 public and 8 private centres. The population used prefer haemodialysis as an option because of the cost effective nature, easy accessibility and reliability. The high cost of dialysis has however presented a major challenge to the nursery sessions, patient's affordability and the number and type of haemodialysis machines in the centres. Factors affecting dialysis are Barriers, Enablers and Contraindicators where the barriers are ranked first because Nigeria is a third World Country where there is no Government support and access to the National Health Insurance is minimal.

Encounter with patients shows their interest in haemodialysis. About 67% of the patients met prefer haemodialysis, 33% of the patients would have love kidney transplantation therapy except for the cost.

The Nephrologists and Nephrology Nurses however have a different view, 90% of all of them prefer haemodialysis if it is adequately done. The reason has been that the cost of maintaining a transplant patient and the side effects of drugs is more than that of weekly haemodialysis. They totally agreed that if haemodialysis is effectively done thrice weekly and the patient takes adequate precaution with continuous contact with Nephrologists, they can live as long as 15 yrs - 20 yrs.

V. Limitations

The study has some limitations which include the reaching out to respondents, selection of sample size, selection of the patients and their unwillingness to speak. No demographic data is on the ground and the fact that the results may not be completely free from bias constituted a limitation. The study considered the factors affecting haemodialysis that could either be real or perceived. Finally, the study did explore shared decision making or influences on patients in their modalities of making decisions.

VI. Conclusion

Haemodialysis being one of the options for the treatment of Renal Disease has been well explored within the arm bit of Clinical interphase based on selected samples. It is not without limitations as shown in the barriers. The high cost of haemodialysis nevertheless, remains the most reliable tool in F.C.T., Nigeria.

Acknowledgement

This is to acknowledge the persons whose contributions made this research a success. First I acknowledge the Almighty God for His ever enduring help and succour. My utmost gratitude goes to my husband Dr. Yayok P. K. and my Head of Department Mallam Umar Aliyu Mayo for their unrelenting efforts in encouraging and reviewing the scripts. Many thanks to the members of my unit, department and National Hospital Abuja.

Reference List

- [1]. Bambgoye E: Haemodialysis: Management Problems In Developing Countries, With Nigeria As A Surrogate Kidney International. 2003,
- [2]. Alebiosu Co, Ayodele Oo, Abbas A, Olutoyin Ai: Chronic Renal Failure At The Olabisionabanjo University Teaching Hospital, Sagamu, Nigeria. *Afr Health Sci* 2006.
- [3]. Ulasi & Ifeoma; Haemodialysis In Renal Therapy In Nigeria, Enugu Nigeria, 2013)
- [4]. Chiejina. Aprivate Dialysis Booms On Renal Disease Upsurge- A Publication Of Businessday. (2014)
- [5]. Chukwunonye Et Al The Plight Of Chronic Kidney Disease Patients In Nigeria: *Journal Of Dental And Medical Sciences (Jdms)*; (2012)
- [6]. Ekrikpo U., Udo A. Et. Al) Haemodialysis In An Emerging Centre In A Developing Country.- Curled From B.M.C Nephrology,2008
- [7]. Grassman Et Al Grassmann A, Gioberge S, Moeller S, Brown G: Esrd Patients In 2004: Global Overview Of Patient Numbers, Treatment Modalities And Associated Trends. *Nephrol Dial Transplant* 2005,
- [8]. Naicker S: End-Stage Renal Disease In Sub-Saharan Africa. *Ethnicity & Disease* 2009,
- [9]. Kotanko Et Al - Haemodialysis: Technology, Adequacy And Outcome In John F. Jurgen F, Richard Jj Editors. *Comprehensive Clinic Nephrology*, Philadelphia, 2007
- [10]. Bsg ;Principles And Guidelines For Management Of Renal Patients, Uk, 2006;
- [11]. Countscore Curriculum For Nephrology Nursing: American Nephrology Nurses Association, 2nd Edition, Usa. .2007;
- [12]. United Nations Statistics Division, National Accounts Section, Available From The National Accounts Main Aggregates Database Website, February 2011);
- [13]. Kotanko Et Al;(2007) Ibid
- [14]. Chiejina. A(2014) Ibid
- [15]. National Kidney Foundation: Kdoqi Clinical Practice Guidelines And Clinical Practice Recommendations For 2006 Updates: Hemodialysis Adequacy, Peritoneal Dialysis Adequacy And Vascular Access. *Am J Kidney Dis* 2006,
- [16]. Walker Et Al Increasing The Update Of Peritoneal Dialysis In New Zealand: A National Survey *Journal Of Renal Care*. (2014);-
- [17]. Agaba Ei, Lopez A, Ma I, Martinez R, Tzamaloukas Ra, Vanderjagt Dj, *Et Al.*: Chronic Hemodialysis In A Nigerian Teaching Hospital: Practice And Costs. *Int J Artif Organs* 2003, 26(11):991-5.

Tables

1. Table 1 – Options of Renal Treatment
2. Table 2 – Reasons for the option of Haemodialysis
3. Table 3 – Factors Affecting Haemodialysis
4. Table 4 – Ranking of Factors affecting haemodialysis

Figures

1. Pie chart showing options of renal treatment
2. Pie chart showing reasons for haemodialysis
3. Pie chart showing ranking of factors

Abbreviations

ARF - Acute Renal Failure
RRT - Renal Replacement Therapy
CRRT - Continuous Renal replacement therapy
ESRD- End Stage Renal Disease
CKD - Chronic Kidney Diseases
URR - Urea Reduction Ratio