

Perceived Barriers to Peritoneal Dialysis Among Kenyan Nephrologists: A Cross-Sectional Descriptive Study

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Abstract

Background: Peritoneal dialysis (PD) is a well-recognized technique of renal replacement therapy (RRT), with similar efficacy as well as survival outcomes as hemodialysis (HD). Despite its advantages including prolonged preservation of residual renal function, potentially lower cost and advances with automated techniques, and commercialization of more biocompatible solutions, the overall prevalence of patients treated with PD is still very low in developed countries and even more so in Africa and low-middle income countries like Kenya. According to our knowledge, no local studies have been done on prevalence of peritoneal dialysis or on potential barriers to utilization of PD as an RRT modality.

Objective: To explore perceived barriers of nephrologists to PD utilization.

Methodology: A computer-based, 22-question questionnaire was formulated using the Delphi technique and sent out to all the nephrologists via emails. There were 30 nephrologists, in clinical practice in Kenya, at the time when the study was conducted. This is according to the registry maintained by the Kenya Renal Association (KRA). Their contacts were obtained from the registry.

Design: A cross-sectional descriptive study

Setting: A computer based 22-question questionnaire was administered to 23 nephrologists in Kenya.

Results: Among the total number of 23 nephrologists, 39% reported to be looking after patients maintained on PD despite 59% of them reporting that they think patients should be maintained on PD. Only 21% of respondents felt limited training in PD limited their use of PD and only 23% felt poor personal experience contributed to limited use. Other barriers that came up with a relative majority of the respondents included lack of nursing expertise, concerns with PD catheter placement, concerns about long-term viability of continuous peritoneal dialysis, concerns about technique failure and peritonitis, lack of facility support for PD, and lack of dialysis education programs.

Conclusion: A significant proportion of nephrologists in this survey felt PD, as a modality of RRT, was underutilized and reported systemic and technical factors as being potential barriers.

Abrégé

Contexte: La dialyse péritonéale (DP) est une modalité bien connue de thérapie de suppléance rénale (TSR) qui présente une efficacité et des résultats de survie similaires à ceux de l'hémodialyse (HD). Malgré ses avantages, notamment la préservation prolongée de la fonction rénale résiduelle, les coûts potentiellement inférieurs, les avancées des techniques automatisées et la commercialisation de solutions plus biocompatibles, la prévalence globale des patients traités par DP demeure très faible dans les pays développés, et plus encore en Afrique et dans les pays à revenu faible et intermédiaire comme le Kenya. À notre connaissance, aucune étude locale n'avait été réalisée sur la prévalence de la DP ou sur les obstacles potentiels à son utilisation comme modalité de TSR.

Objectif: Explorer les obstacles perçus par les néphrologues quant à l'utilisation de la DP.

Méthodologie: Un questionnaire informatisé de 22 questions a été formulé à l'aide de la technique Delphi et envoyé à tous les néphrologues par courrier électronique. Il y avait 30 néphrologues, en pratique clinique au Kenya, au moment où l'étude a été menée. C'est selon le registre tenu par la Kenya Renal Association (KRA). Leurs contacts ont été obtenus à partir du registre.

Conception: Étude transversale et descriptive.

Cadre: Un questionnaire informatisé de 22 questions a été distribué à 23 néphrologues kenyans.

Résultats: Parmi les 23 néphrologues sondés, 39 % ont déclaré s'occuper de patients traités par DP. Une majorité des répondants (59 %) était d'avis qu'au moins 20% des patients devraient être traités par DP. Seulement 21 % des répondants



estimaient que le peu de formation en matière de DP limitait son utilisation, et seulement 23 % jugeaient que leur mauvaise expérience personnelle avait contribué à l'utilisation limitée de la DP. Les autres obstacles rapportés par une majorité relative de répondants étaient le manque d'expertise en soins infirmiers, des préoccupations concernant le placement des cathéters, des préoccupations sur la viabilité à long terme de la DP en continu, des préoccupations concernant la péritonite et l'échec de la modalité, le manque de soutien des établissements en lien avec la DP, et le manque de programmes d'éducation en dialyse. **Conclusion:** Une bonne proportion des néphrologues sondés estimait que la DP était sous-utilisée comme modalité de TSR. Plusieurs ont par ailleurs rapporté des facteurs systémiques et techniques comme obstacles potentiels à son utilisation.

Keywords

peritoneal dialysis, renal replacement therapy (RRT), end stage renal disease, barriers to peritoneal dialysis, continuous renal replacement therapy

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Introduction

There is an increasing burden of chronic kidney disease in Africa as is globally with expected increase in the number of patients requiring RRT.¹ This can be in the form of dialysis, either PD or hemodialysis (HD), or renal transplantation in patients who are deemed eligible. In Kenya, although renal transplantation services are available currently in both private and public facilities, availability of graft donors as well as financial constraints greatly limit the number of patients able to access this service. Therefore, a good majority require RRT in the form of dialysis as they await transplantation. By far, the commoner modality of RRT in Kenya is hemodialysis. This is despite similar survival outcomes in the 2 modalities in various long-term studies done.² There are other advantages associated with PD including preservation of residual renal function and potentially lower cost compared to HD.³

There are no local studies done on the prevalence of PD in Kenya, but it is approximated that just around 20 patients are on the modality, compared with over 4000 patients on HD. In a low-to-medium-level-income country like Kenya, with the increasing burden of CKD/ESRD and the patients anticipated to require RRT, it is expected that provision of these services will lead to significant financial cost. There has already been increased recognition of the burden that ESRD poses with significant government initiative in training nephrologists, setting up dialysis units in all counties as well as facilitating access to HD through national health insurance fund that caters for up to 2 dialysis sessions per week. It is however important, given the potential cost effectiveness

of PD, to explore the reasons behind why it remains vastly underutilized and actively look for ways to promote its uptake.³

The perception and attitudes of both the patient and the doctor on the modality of chronic renal replacement therapy determines what type of dialysis the patient will be started on. Education about peritoneal dialysis plays a major role in starting peritoneal dialysis. There are mainly 2 frontline reasons for not initiating PD: either the patients refuse it or the doctors are reluctant to propose it.

Given the significantly limited number of nephrologists in Kenya,⁴ it is vital to get an insight on their views on why PD is underutilized as it may offer potential solutions on how to promote the uptake of this significant yet underutilized modality. Now, there are about 35 nephrologists in Kenya, with a majority in the urban settings and in private practice. This means that 1 nephrologist serves a population of about 1.5 million people. However, most of the patients are having their dialysis services funded by NHIF with a minority on private insurance schemes. There is no reimbursement from NHIF for PD now.

Methodology

This was a cross-sectional descriptive study whose primary objective was to determine the perceptive barriers to peritoneal dialysis among nephrologists in Kenya.

A computer-based 22-question questionnaire was formulated using the Delphi technique and sent out to all the nephrologists via emails. There were 30 nephrologists, now increased to 35, in clinical practice in Kenya, at the time

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when the study was conducted. This is according to the registry maintained by the Kenya Renal Association (KRA). Their contacts were obtained from the registry. However, only 23 (77%) responded by answering the questionnaires and sending them back within a period of 3 months.

They were yes/no questions on various aspects of PD including nephrologists' experience with PD, rates of PD utilization versus desired rates, main concerns regarding PD, and patient education.

The questionnaire used has been attached for easy reference. The data obtained were analyzed using SPSS Version 20. Ethical approval to conduct the study was obtained from the Aga Khan University's Institutional Ethics Review Committee.

Results

Nephrologists' Experience/Education With PD

39% (9) of the respondents reported to have patients that they cared for on maintenance PD. However, 53% (12) of them had only at least 2 patients on PD in their care and only 1 respondent noted having more than 10 patients on maintenance PD. In contrast, 41% (9) reported having more than at least 50 patients on maintenance hemodialysis under their care. Only 23% (5) felt that prior poor experience limited their utilization of the modality.

As regards nephrologist training on PD as a modality, 71% (16) of respondents felt that limited training in PD did not limit their utilization as an RRT modality though 57% (13) did report that they had not had formal PD training the preceding 5 years. However, 78% (18) noted that they had attended some form of continuous medical education in the last 3 years. Thus, most respondents felt they were adequately trained and a majority maintained some continuous education in the preceding 3 years.

Rates of PD Utilization Versus Desired Rates of Utilization

54% (12) of the nephrologists who responded felt that at least 20% (4) of patients with incident ESRD should be initiated on PD and 59% (14) felt that the same percentage should be maintained on PD. The dominant feeling was that the rates of PD utilization are far below that desirable and more patients need to be on the modality than currently are.

Main Concerns Regarding PD Acting as Potential Barriers

System factors that came up from reviewing the responses included the following: Lack of hospital support for PD modality with 81% (19) reporting that they felt that hospitals did not offer support for PD, lack of adequate nursing

expertise (82% (19) of respondents), and lack of support for PD in convalescent homes (87% (20) of respondents).

Technical factors that came up as potential barriers included the following: Concerns about peritonitis (69% (16)), technique failure (55% (13)), concerns about long-term viability of continuous peritoneal dialysis (CPD) (52% (12)), and problems with PD catheter placement (52% (12)).

Of note was that reimbursement being a limiting factor was not in concern among 72% of the respondents neither was concern about relative mortality with CPD (95% (22)

Presence of Pre-Dialysis Education Programs

69% (16) of the respondent nephrologists noted that there was no structured CKD/dialysis education program for patients with CKD/ESRD with up to 70% (16) reporting that less than 10% (2) of their current dialysis patients attended a CKD education program. However, 52% (12) reported that both HD and PD modalities were discussed with patients with CKD.

Discussion

Peritoneal dialysis as a modality of RRT remains largely underutilized in Africa and in Kenya. Studies have explored system factors that may contribute to its poor utilization.⁵ Possible factors suggested including cost, rural setting, poor infrastructure with transportation difficult, limited access to water and electricity, unsuitable living circumstances, and lack of enough nephrologists. Eligibility of patients in our setting and patient factors that may act as barrier remain unexplored. The purpose of this study was to explore perceptive barriers to PD among nephrologists in Kenya given their significantly limited numbers, their views are vital in understanding possible reasons behind underutilization of PD.

Most nephrologists felt that PD as a modality was indeed underutilized with 54% reporting that they felt at least 20% of incident ESRD patients should be initiated on PD and the same percentage at least, 59% felt, should be maintained on PD. This was noted to be like a study in Belgium examining similar perspective barriers in nephrologists to PD that reported 88% felt that PD was underutilized and that the proportion of patients maintained on PD should be 20% to 25%.⁶

Most nephrologists felt limited training did not limit their utilization of PD with up to 78% noting to have undergone some form of continuous medical education on PD in the preceding 3 years. Thus, most respondents felt they were adequately trained. Increased uptake of PD would enhance the skills already acquired as well as allow exposure to those the nephrologists supervise/train, further rousing interest in acquiring the necessary skills.

Technical factors that may act as barriers to PD uptake came up in the survey. Concerns included peritonitis (69%), technique failure (55%), concerns about long-term viability

of CPD (52%), and problems with PD catheter placement (52%). Education of patients regarding meticulous care and hygiene may play a role in mitigating the risk of peritonitis. In addition, the respondents also noted system factors that have been cited as potential barriers. These included lack of hospital support for PD, lack of nursing expertise, and lack of PD support in convalescent homes.

Predialysis education including education on modality choice is an important part of preparing patients for dialysis and their selection of a dialysis option. Studies show that predialysis education improves preparation for dialysis and survival in patients with CKD.⁷ In this survey, 69% of nephrologists that responded noted that there was no predialysis education for CKD patients, which may be a significant factor in reducing the rate of uptake of peritoneal dialysis. This finding was echoed by Christopher T Chan et al in their paper on barriers and potential solutions in Home Dialysis.

In conclusion, a significant proportion of nephrologists in this survey felt PD as a modality of RRT was underutilized and reported systemic and technical factors as being potential barriers. Most did not feel limitations in their training limited utilization of PD, and a significant proportion reported maintaining their knowledge via continuous medical education. It was also reported by 69% of nephrologists that there was no predialysis education program for their CKD patients. It would be therefore important to conduct a larger survey involving all the stakeholders as well coming up with strategies on carrying out pre-dialysis education among patients.

Limitations

1. The study did not look at the information on the years of experience for the nephrologists.
2. Only the nephrologists were involved in the study leaving out other stakeholders.

Recommendations

1. A larger study needs to be carried out involving the key stakeholders in the provision of renal replacement

therapy, for instance, renal nurses and end-stage renal disease patients.

2. An expanded questionnaire should be used to include other important factors such as the duration of practice.

Declaration of Conflicting Interests

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