

Influence of Nephrologist Physician Teaching about Dialysis Modalities in Pre-Dialysis Clinic on Peritoneal Dialysis Choice, Single Centre Experience

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Abstract

Background: The Pre-dialysis clinic can improve the length and quality of survival of patients with end-stage renal disease, delaying the progression of chronic kidney disease and the need for dialysis. Also, it has a link to make the best therapy selection at the time that dialysis is needed.

Aim of Study: Nephrologist physicians teaching about dialysis modalities in the pre-dialysis clinic influence the choice of home dialysis modality especially peritoneal dialysis.

Patients and Methods: Retrospective observational study that focuses on the first modality of dialysis choice and the influence of nephrologist physician teaching in these choices. Observation for follow up patients in the pre-dialysis clinic started from March 6-2018 to March 19-2019. The teaching about access was responsible by the nephrologist physician, education about access started on the second clinic visit with encouraging and discussion each visit after, till the patient started on dialysis. After applying inclusion criteria, a total number of patients follow-up for over two visits with stage III B to V were 104 patients.

Results: A total of 24 out of 34 patients after teaching about access by nephrologist physician choose peritoneal dialysis. Most of them were male patients and younger than 45y old. Both of CKD stage IV and V showed more interesting in peritoneal dialysis. 15 of them were a candidate for peritoneal catheter insertion after assessment by interventional team and they have catheter insertion. Ten patients have chosen hemodialysis as a first choice modality but 19 patients end up on conventional hemodialysis in the center.

Conclusion: Nephrologist physicians could influence the choice of home dialysis modality especially peritoneal dialysis. Further studies will require to assess this concept.

Key Words: *Peritoneal dialysis – End stage renal disease – Chronic kidney disease – Hemodialysis – Nephrologist.*

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Introduction

THE prevalence of chronic kidney disease is increasing worldwide [1]. Early diagnosis and closely monitor for the late stages of chronic kidney disease still need further studying especially the decision to choose dialysis modality and when to start on renal replacement therapy. Pre-dialysis clinic can improve the length and quality of survival of patients with end-stage renal disease, delaying the progression of chronic kidney disease and the need for dialysis and be prepared to make the best therapy selection at the time that dialysis is needed. But the way of teaching in these clinics is the key to the better modalities of renal replacement choice. [2,3]. Not to mention, Patients should be ready at the time of initiate dialysis modality choice discussion to have a better understand and ability to choose between in-center hemodialysis, home dialysis like peritoneal dialysis or pre-emptive transplant [4].

Kingdom of Saudi Arabia like other countries has an increase in the number of chronic kidney diseases, the decision for dialysis modalities still a huge issue given a lack of education around dialysis modality, initiation time and access plan. Also, no enough research in this regard from national kidney centers.

The dialysis statistics prepared by the Saudi Center for Organ Transplantation (SCOT) at the end of 2017 showed a total of 19,659 dialysis patients, 18,270 of them are treated by hemodialysis (HD) and the remaining 1,389 by peritoneal dialysis. With an expectation for this number to be more than 20000 patients by 2020 [5]. From this statistical, we noticed the peritoneal dialysis percent 7% only that is much away from the international recommendation about home dialysis percent.

In this article, the observation from a single pre-dialysis clinic at king Fahad hospital kidney center. It aims to show the influence of the nephrologist physician in teaching about dialysis modalities and patients' choice, especially for peritoneal dialysis.

Patients and Methods

The pre-dialysis clinic in king Fahad center started on March 6-2018. The aim of this clinic was focusing on patients' education about the different modality of dialysis, monitoring to delay the progression of chronic kidney disease and, discussion about a conservative option for fragile patients.

I apply a retrospective observational study that focuses on the first modality of dialysis choice and the influence of nephrologist physician teaching in these choices. Observation for follow-up patients in the pre-dialysis clinic started from March 6-2018 to March 19-2019. Inclusion criteria patients with CKD stage III B to V, the patient should be seen in clinic for at least two visits and he/she got teaching about dialysis modality if he/she stage IV, exclusion criteria missing follow-up, CKD stage I-II and follow-up less than or equal to two visits (Table 1).

The total number of patients seen in this clinic from March 6-2018 to March 19-2019 was 200 patients. The teaching about access was responsible by the nephrologist physician, education about access started on the second clinic visit with encouraging and discussion each visit after, till the patient started on dialysis. After applying inclusion criteria a total number of patients follow-up for over two visits with stage III B to V were 104 patients (Fig. 1). Around ten patients missed their follow-up after three visits and I excluded them from the study, the patients who included are the ones who completed their follow-up within the clinic till they started on dialysis or have a pre-emptive renal transplant. About ninety patients received education about access, eight of them missing their follow-up and 34 patients started on dialysis (Fig. 2), the remaining number of the patients still following up at the clinic.

I collected the data for this article from the electronic database and paper-based for the patient in the pre-dialysis clinic.

I performed a descriptive statistical analysis using Medcalc software. I calculated frequency and percentages to present categorical variables between dialysis modality choice and dialysis

modality started for the number of patients, age, sex and chronic kidney stage using a chi-squared test p -value of < 0.05 considered as significant.

Table (1): Patients characteristics.

Patients No.	34
Age	19-68 Y
Sex:	
M/F	20/14
Average No of vislts	3-12 Visits
CKD Stage:	
IV/V	24/7
Causes:	
HTN	11 (32.4%)
DN	6 (17.6%)
HTN/DM	6 (17.6%)
GN	4 (11.8%)
PCKD	1 (2.9%)
NSAIDS	2 (5.9%)
Urological Problem	3 (8.8%)
Others	1 (2.9%)
Total	34 (100%)

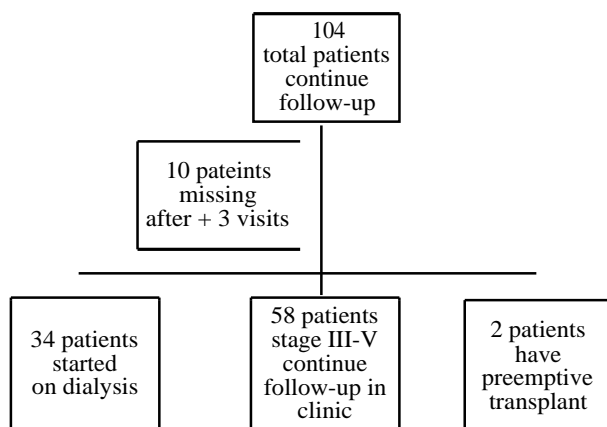


Fig. (1): Patients distribution at pre-dialysis clinic.

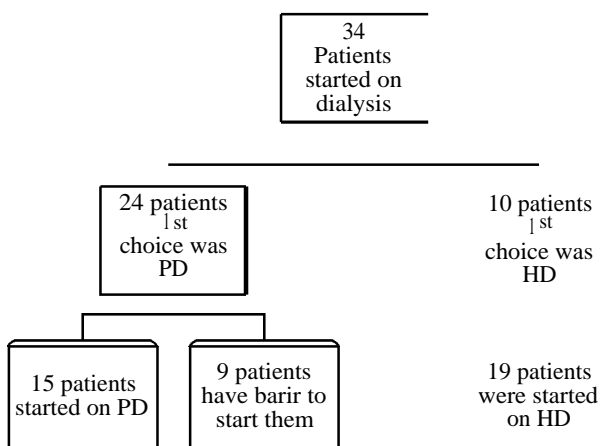


Fig. (2): Patients started on dialysis.

Results

This observation focused on dialysis modality choice by patients and which one they started on only. We choose two factors for comparison chronic kidney disease stage IV and V, sex and age of the patients. 34 patients started on dialysis (Table 2) most of the patients who have peritoneal dialysis choice are younger than 45 years old. A total of 24 out of 34 patients after teaching about access by nephrologist physician choose peritoneal dialysis (Table 3, Fig. 3) most of them were male patients, both of CKD stage IV and V showed more interesting in peritoneal dialysis. After that, they referred for interventional radiologists or/and surgeons and got a full assessment for catheter insertion. Also, they referred to social workers for living condition assessment. 15 of them were a candidate for peritoneal catheter insertion and they have catheter insertion, then they started on peritoneal dialysis within two weeks (Table 4, Fig. 4). Most of them were male patients. Although In the CKD stage V, who choose peritoneal dialysis, most of them got their choice five out of the six patients, which means even in late referral, patients still have time to receive education about different modality and make their own choice. The remaining of the nine patients were not a candidate for peritoneal catheter insertion because of their body habit, not a surgical or anesthesia candidate or their insurance did not cover for peritoneal dialysis. Ten patients have chosen hemodialysis as a first-choice modality but 19 patients end up on conventional hemodialysis in the center after adding the non-peritoneal dialysis candidates.

Table (2): Comparison between peritoneal dialysis and hemodialysis basic on first choice, initiation, and age.

	Peritoneal dialysis (Mean±SD)	Hemodialysis (Mean±SD)	p-value
First choice modality	12±3	5±3	<0.001 *
Initiation this modality	7.5±3.5	9.5±3.5	0.1078
No of visit for 1st choice	5.3±2.5	6.1±1.9	0.3719
Age for 1st choice	39.8±12.2	56.8±8.7	<0.001 *

Table (3): Comparison of modality choice between peritoneal dialysis and hemodialysis basic on CKD stage and Sex.

Modality Choice	PD	HD	p-value
Patients number	24 (70.6%)	10 (29.4%)	0.0164
CKD Stage:			
IV	18 (66.6%)	9 (33.3%)	0.3243
V	6 (85.7%)	1 (14.2%)	
Sex:			
M	16 (80.0%)	4 (20%)	0.1499
F	8 (57.1.6%)	6 (42.9%)	

Table (4): Comparison of modality initiated between peritoneal dialysis and hemodialysis basic on CKD stage and Sex.

Modality Initiated	PD	HD	p-value
Patients number	15 (44.1%)	19 (55.9%)	0.4927
Stage			
IV	10 (37.1%)	17 (62.9%)	0.1025
V	5 (71.4%)	2 (28.6%)	
Sex			
M	11 (55%)	9 (45%)	0.1266
F	4 (28.6%)	10 (71.4%)	

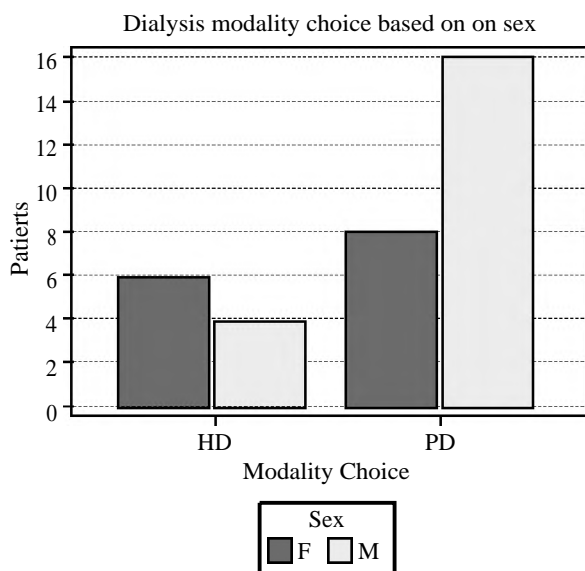
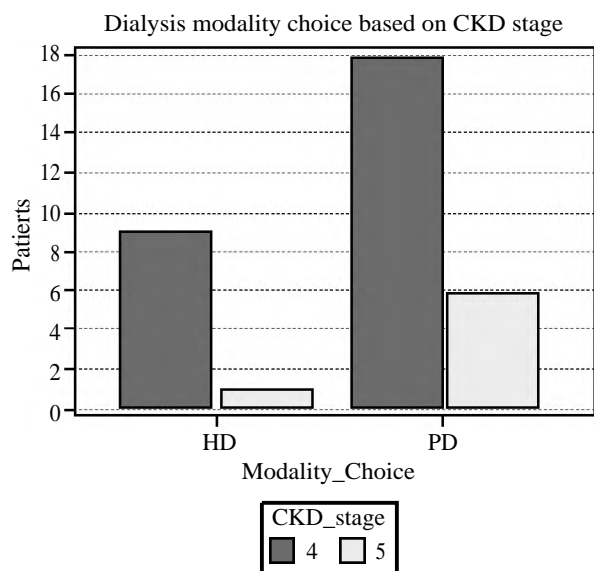


Fig. (3): Comparison of modality choice between peritoneal dialysis and hemodialysis basic on CKD stage and Sex.

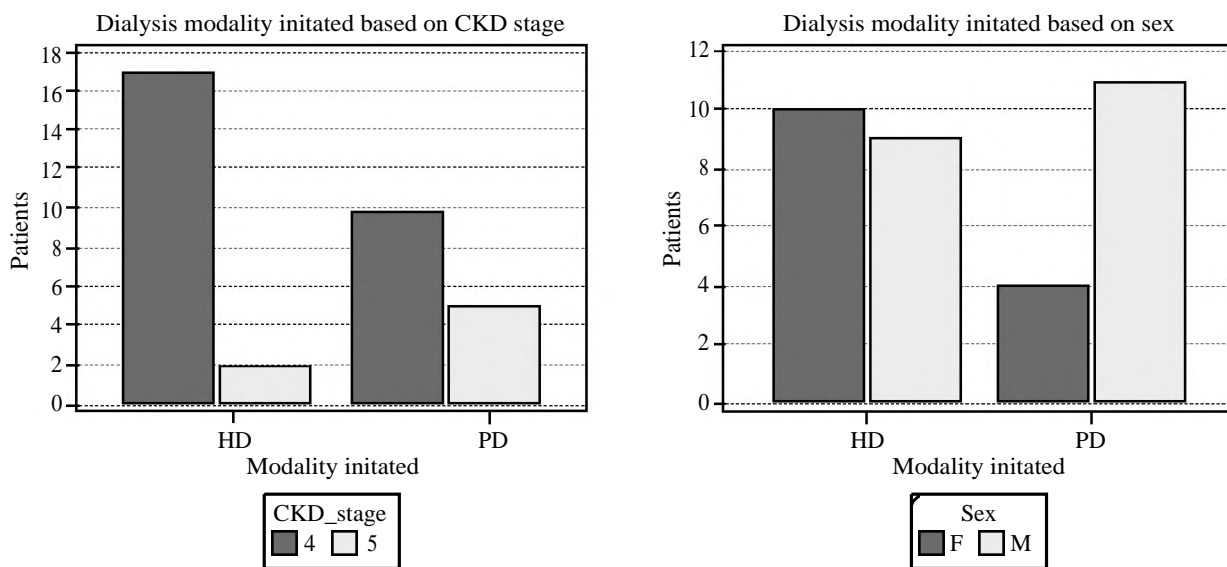


Fig. (4): Comparison of modality initiated between peritoneal dialysis and hemodialysis basic on CKD stage and Sex.

Discussion

There is a link between pre-dialysis clinic and increase awareness about home dialysis modality especially peritoneal dialysis [6]. For the last decades a lot of research focusing on this point but when, how and who should be the most effective one to teach patients still unclear [7]. Dahlan, et al., showed improving education for both patients and nephrologists could increase the peritoneal dialysis percent in Saudi Arabia [8]. Where in this article we approve this concept, that nephrologist teaching about access and spent time to discuss dialysis modality each clinic could influence the choice of the patient for peritoneal dialysis. Even with a late referral, it may still able to discussed dialysis and refer for peritoneal dialysis as the first modality.

In Ribitsch, et al., study, their program teaching in pre-dialysis clinics increased the number of patients who started on peritoneal dialysis [9]. The result from our pre-dialysis clinic showed the same result, but we differed from their program, they teaching patients about dialysis modalities as part of two days educational program by the multidisciplinary team, on our article we did the teaching for dialysis modalities only by the nephrologist in the clinic with frequent encourage for a decision on each clinic.

Lacson, et al., in their study showed the benefit of predialysis to increased the home dialysis modalities' choice and reducing the 90 days mortality. [10]. In our observation, we did not focus on the 90 days mortality but we were similar to increase peritoneal dialysis as the first modality of choice.

On the other hand, many articles showed the effect of education in the pre-dialysis clinic to increase the home dialysis choice modality especially peritoneal dialysis than in-center conventional hemodialysis [11-13]. This reflects not only patients' benefit from better survival, preserve vascular access and residual kidney function [14], but also, to decrease the burden of in-center hemodialysis budge from the health care system [15]. Our observation showed a unique idea focusing on nephrologists teaching about dialysis modality and its influence on peritoneal dialysis choice.

The strength of our observation, including patients with advanced kidney disease even stage V, who received the education about dialysis modalities and following-up their journey till they initiated on dialysis, where the weakness of this observation may be better if we have a larger number of patients initiated on dialysis or had a comparison with patients who do not receive an education.

Conclusion: Nephrologist physicians teaching about dialysis modalities in the pre-dialysis clinic influence the choice of home dialysis modality especially peritoneal dialysis. Further studies require to assess the role of the nephrologist physicians toward peritoneal dialysis as the first modalities of choice.

References

1- LEVIN A.: The advantage of a uniform terminology and staging system for chronic kidney disease (CKD). *Nephrol Dial Transplant*, 18 (8): 1446-51, 2003.

- 2- FINKELSTEIN F.O., STORY K., FIRANEK C., et al.: Perceived knowledge among patients cared for by nephrologists about chronic kidney disease and end-stage renal disease therapies. *Kidney Int.*, 74: 1178-1184, 2008.
- 3- WINTERBOTTOM A., BEKKER H.L., CONNER M. and MOONEY A.: Choosing dialysis modality: Decision making in a chronic illness context. *Health Expect*, 17: 710-723, 2014.
- 4- BRENDAN P. CASSIDY, LORI HARWOOD, LEAH E., GETCHELL, 3 MICHAEL SMITH, 4 SHANNON L., SIBBALD and LOUISE M. MOIST.: Educational Support Around Dialysis Modality Decision Making in Patients With Chronic Kidney Disease: Qualitative Study. *Can. J. Kidney Health Dis.*, 5: 2054358118803323, 2018.
- 5- Dialysis in the Kingdom of Saudi Arabia. *Saudi J. Kidney Dis. Transpl.*, 29: 1012-20, 2018.
- 6- MENDELSSOHN D.C., MUJAIS S.K., SOROKA S.D., et al.: A prospective evaluation of renal replacement therapy modality eligibility. *Nephrol. Dial. Transplant*, 24: 555-561, 2009.
- 7- JUDITH VAN DEN BOSCH, D. SIMONE WARREN and PETER A. RUTHERFORD: Review of predialysis education programs: A need for standardization. *Patient Prefer Adherence*, 9: 1279-1291, 2015.
- 8- RANDAH DAHLAN, MOHAMMAD QURESHI, FATMAH AKEELY and ABDULLAH A. AL SAYYARI.: Barriers to Peritoneal Dialysis in Saudi Arabia: Nephrologists' Perspectives. *Perit. Dial. Int. Sep-Oct.*, 36 (5): 564-566, 2016.
- 9- RIBITSCH W., HADITSCH B., OTTO R., et al.: Effects of a pre-dialysis patient education program on the relative frequencies of dialysis modalities. *Perit. Dial. Int.*, 33: 367-371, 2013.
- 10- LACSON E, J.R., WANG W., DEVRIES C., et al.: Effects of a nationwide pre-dialysis educational program on modality choice, vascular access, and patient outcomes. *Am. J. Kidney Dis.*, 58: 235-242, 2011.
- 11- MEHROTRA R., MARSH D., VONESH E., PETERS V. and NISSENSON A.: Patient education and access of ESRD patients to renal replacement therapies beyond in-center hemodialysis. *Kidney Int.*, 68: 378-390, 2005.
- 12- COVIC A., BAMMENS B., LOBBEDEV T., et al.: Educating end-stage renal disease patients on dialysis modality selection: Clinical advice from the European Renal Best Practice (ERBP) Advisory Board. *Nephrol Dial Transplant*, 25: 1757-1759, 2010.
- 13- GOOVAERTS T., JADOUL M. and GOFFIN E.: Influence of a pre-dialysis education programme (PDEP) on the mode of renal replacement therapy. *Nephrol. Dial. Transplant*, 20: 1842-1847, 2005.
- 14- HEAF J.G., LOKKEGAARD H. and MADSEN M.: Initial survival advantage of peritoneal dialysis relative to haemodialysis. *Nephrol. Dial. Transplant*, 17: 112-117, 2002.
- 15- YU Y.J., WU I.W., HUANG C.Y., et al.: Multidisciplinary predialysis education reduced the inpatient and total medical costs of the first 6 months of dialysis in incident hemodialysis patients. *PLoS. One.*, 9 (11): E112820. Published 2014 Nov. 14. doi: 10.1371/journal.pone.0112820, 2014.

تأثير تدريس اطباء الكلى على اختيار الية الغسيل الكلوي المنزلي وخصوصا الغسيل البريتوني

اثبت العديد من الدراسات ان عيادة ما قبل الغسيل الكلوي لها دور مهم وفعال في المحافظة على وظائف الكلى لوقت اطول وكذلك لاعطاء المريض الحق في استعراض انواع الغسيل المختلفة واختيار النوع الامثل الذي يتناسب وظروفه المعيشية وحيث ان العنصر الأهم لتحديد الخيار الامثل هو طريقة استعراض انواع الوصلات المختلفة والتدريس المتكامل حولها ومن المخلول من فريق الكلى والانسب للقيام بهذه المهمة. وحيث انه لا يوجد حتى الان دراسة او بروتوكول يوضح العضو الانسب من فريق الكلى للقيام بهذه المهمة جاءت فكرة هذه الورقة والتي تشرح دور استشاري امراض الكلى وتدريبه لانواع الغسيل الكلوي المختلفة في عيادة ما قبل الغسيل الكلوي ومادى تأثيره على الاختيار للغسيل الكلوي المنزلي وبالاخص الغسيل البريتوني. خلال هذه الدراسة قمنا باستعراض جميع الحالات التي زارت عيادة ما قبل الغسيل الكلوي خلال الفترة من مارس 2018 وحتى مارس 2019. وحيث ان مجموعة الحالات كان 200 مريض قمنا باختيار الشريحة المستهدفة منهم والتي تضمنت مرضى الكلى للمراحل المتقدمة الرابعة والخامسة ويكون قد تابع بالعيادة لزيارات لا تقل عن ثلاث وحتى بدء الغسيل الكلوي واتم برنامج التدريس المخصص من قبل استشاري الكلى وحيث ان مجموع المرضى الذين انطبقت عليهم الشروط كانت 100 مريض. وجدنا ان حوالي 34 مريض بدؤوا على الغسيل الكلوي خلال هذه الفترة واكملوا البرنامج التدريسي بالعيادة. 24 مريض كان الخيار الامول لهم الغسيل البريتوني معظمهم من الاقل من 45 سنة والرجال اكثر من النساء وبعد عرضهم على الفريق الجراحي تم عمل القسطرة لحوالي 15 منهم والباقي تم اقضاءهم لوجود موانع لعمل القسطرة لديهم في حين كان عدد من اختيار الغسيل الدموي بمراكز الغسيل فقط عشرة مرضى. نستنتج ان هناك دور مؤثر وقوي لاطباء الكلى على اختيار الغسيل المنزلي خصوصا البريتوني من خلال تدريس انواع الغسيل بالعيادة ولكن هذا التأثير. يحتاج لدراسات اكثر وعلى شريحة اكبر.