

Choice of dialysis modality-clinical and psychosocial variables related to treatment

Escolha do método dialítico - variáveis clínicas e psicossociais relacionadas ao tratamento

Authors

Ester Pereira ¹

Janaína Chemin ¹

Claudia L. Menegatti ²

Miguel Carlos Riella ¹

¹ Fundação Pró-Renal Brasil.

² Universidade Federal do Paraná.

Submitted on: 07/23/2015.

Approved on: 09/21/2015.

Correspondence to:

Miguel C. Riella.

Fundação Pró-Renal Brasil.

Rua Vicente Machado, nº 2190,

Curitiba, Paraná, Brasil.

CEP: 80440-020

E-mail: mcriella@gmail.com

DOI: 10.5935/0101-2800.20160031

ABSTRACT

Introduction: Among the dialysis modalities, there is a prevalence of hemodialysis (HD). **Objectives:** To verify who chooses the dialysis modality and which variables reflect the perception of patients and health care team about treatment. **Methods:** The study was conducted at three clinics of HD and peritoneal dialysis (PD). Two hundred and twenty patients participated in the study, of whom 69.5% were on HD and 30.5% on PD. Included voluntary patients on treatment from 90 days to 2 years, with. Of the 54 health workers, 18.5% were doctors, 20.4% nurses and 61.1% nurse technicians: Two questionnaires were applied: one for professionals and one for patients. **Results:** Most patients had their modality of dialysis chosen by doctors: 76.3%. Most patients rejected a change of treatment in both HD (83%) and PD (92.5%). There was a significant association by PD patients of their modality with greater safety ($p = 0.041$), well-being ($p = 0.002$), near normal life ($p = 0.002$), freedom ($p < 0.001$) and high-spirits ($p = 0.021$). HD patients perceive PD as allowing more freedom ($p = 0.003$), autonomy ($p = 0.001$) and high spirits ($p = 0.019$). In assessing the medical and nursing staff for clinical and psychosocial variables, professionals indicated a greater frequency for variables related to quality of life ($p = 0.007$), psychosocial well-being ($p = 0.007$) and clinical well-being ($p = 0.004$) when associated with PD therapy. **Conclusions:** The choice of dialysis modality was a decision solely of doctors in 76.3% of cases. PD was considered by the health care team as the best modality therapy with regard to quality of life, clinical and psychosocial well-being

Keywords: kidney failure, chronic; nursing; peritoneal dialysis, continuous ambulatory; physicians; renal dialysis.

RESUMO

Introdução: Entre as modalidades dialíticas, é nítida a prevalência da hemodiálise (HD). **Objetivos:** Verificar quem escolhe modalidade dialítica, e quais variáveis refletem a percepção dos pacientes e equipe de saúde sobre o tratamento. **Métodos:** O estudo foi realizado em três clínicas de HD e uma de diálise peritoneal (DP). Participaram 220 pacientes, 69,5% em HD e 30,5% em DP. Incluídos pacientes voluntários em tratamento de 90 dias a 2 anos. Dos 54 profissionais de saúde, 18,5% eram médicos, 20,4% enfermeiros e 61,1% técnicos de enfermagem. Foram aplicados dois questionários: um aos profissionais e outro aos pacientes. **Resultados:** A maioria dos pacientes teve sua modalidade dialítica escolhida pelos médicos: 76,3%. A maioria recusa uma mudança de tratamento tanto na HD (83%) quanto na DP (92,5%). Os pacientes em DP associaram a sua modalidade a maior segurança no tratamento ($p = 0,041$), bem-estar ($p = 0,002$), manutenção de uma vida normal ($p = 0,002$), liberdade ($p < 0,001$), ânimo ($p = 0,021$). HD percebe a DP como proporcionando maior liberdade ($p = 0,003$), autonomia ($p < 0,001$) e ânimo ($p = 0,019$). Na avaliação da equipe médica e de enfermagem das variáveis clínicas e psicossociais, os profissionais indicaram em maior frequência os fatores referentes à qualidade de vida ($p = 0,007$), bem-estar psicossocial ($p = 0,007$) e bem-estar clínico ($p = 0,004$) quando associaram a terapia com a DP. **Conclusões:** A escolha da modalidade dialítica foi decisão exclusivamente dos médicos em 76,3% dos casos. A DP foi considerada pelos profissionais como melhor terapia dialítica no que diz respeito à qualidade de vida, bem-estar clínico e psicossocial.

Palavras-chave: diálise peritoneal ambulatorial contínua; diálise renal; enfermagem; falência renal crônica; médicos.

INTRODUCTION

Chronic Kidney Disease (CKD) has been recently recognized as highly prevalent worldwide, ranging from 10% to 13% among adults.¹ The prevalence of patients on hemodialysis (HD) is far superior to that of patients in peritoneal dialysis (PD), both in Brazil and in other countries.²⁻⁷ In the 2014 census carried out by the Brazilian Society of Nephrology, it was estimated that in Brazil there would be 112,000 dialysis patients; 91.4% in HD and 8.6% in PD. Moreover, the use of PD in other countries, such as Mexico and Hong Kong, is higher than 80%. In those countries, this modality has better cost-benefit ratio, and HD is indicated only for patients who have contraindications to PD.²

This high HD prevalence has been the subject of numerous studies and publications in order to understand the variables that influence the choice of dialysis modality. For British nephrologists, medical factors were the most important factors affecting the selection, with great tendency in favor of HD, leaving PD for those patients with heart disease, *diabetes mellitus* and issues related to social needs.⁷

In the absence of contraindications, the choice of treatment can be based on patient preference, the mode that best suits his/her daily activities and lifestyle.^{8,9} Some authors reported that early referral to a nephrologist provides for a better timing to start dialysis, reduce costs and lower mortality rates. It also educates the patient about the procedures, better enabling the patient to make the decision on the renal replacement therapy mode to choose from.^{6,9-13}

Studies suggest that there are several other factors that determine the selection of dialysis modality, such as psychological variables (perception of treatment, personality, presence of psychopathology), behavioral compliance variables (habits, medication, treatment sessions) and social variables (social and family support, occupational activity, socioeconomic status) that can significantly influence clinical outcomes and pre-dialysis care; and contribute to such decision making process.^{4,9,12,14,15}

Jager *et al.*¹⁴ mention that most of the studies published focus on the beliefs and behaviors of nephrologists vis-à-vis the choice for dialysis modality, but little about variables that influence the choice of the patient and their resistance concerning a change in treatment mode. When informed previously, half of the patients choose the peritoneal dialysis treatment.^{16,17}

The literature that addresses the issue is still scarce in Brazil. It is important to stress the contribution of this study in an attempt to identify who decided for the dialysis method and which clinical and psychosocial variables reflect the perception of patients and healthcare professionals about treatment and possible changes to treatment mode.

METHODS

This descriptive exploratory study was approved by the Ethics Committee of the Evangelical School of Paraná (No. 9686/09) and performed in three hemodialysis clinics and one of peritoneal dialysis center served by the Fundação Pró-Rim Brasil in Curitiba, PR, involving 220 patients with CKD, of whom 153 (69.5%) were submitted to hemodialysis treatment and 67 (30.5%) to peritoneal dialysis. Most of the patients (90%) had coverage from the Brazilian Public Healthcare System - SUS. Of the 54 healthcare professionals involved, 10 (18.5%) were physicians, 11 (20.4%) nurses and 33 (61.1%) were nurse Technicians.

SELECTION CRITERIA

For the selection of patients, we considered the following inclusion criteria: voluntary participation in treatment for periods of 90 days to 2 years, facilitating the recall process. Exclusion criteria: presence of neurological (e.g. dementia.) and cognitive (e.g. mental retardation.) issues, psychosis and those from a kidney transplant. Doctors and nursing staff are the professionals who serve in the dialysis clinics attended by the Fundação Pró-Rim Brasil, with voluntary participation in the study.

CRITERIA, INSTRUMENTS AND PROCEDURES

We used two questionnaires as research tools. One was applied to the medical and nursing staffs and the other was applied to patients. Both questionnaires comprised multiple-choice questions. The application was made after the signing of the free and informed consent. The questionnaire was self-administered to professionals; to patients, it was applied and interpreted by the Psychology department of the Fundação Pró-Rim Brasil. This survey lasted two months, beginning in December 2009 and ending in February 2010.

The questionnaire creation for patients was based on the review of the literature that explored

the following factors: perception and feelings of patients related to treatment, flexibility, satisfaction and knowledge about the procedures and decision for the renal therapy.^{3,9,12-14} We also collected data on underlying diseases by consulting the patients' charts.

Hemodialysis patients were interviewed during the dialysis treatment, while those under peritoneal dialysis were interviewed before or after the monthly medical consultation at the Fundação Pró-Rim Brasil. The questionnaire to doctors and nursing staff was based on the instrument applied to nephrologists in Canada, England and the United States, the "Dialysis Modality Survey".⁴

We adapted it to the Brazilian reality with respect to dialysis treatment. Each questionnaire factor evaluated by the professionals consisted of two scales, each with one type of rating. One scale ranged from 1 to 5 related to the degree of importance (1 = not important, 2 = somewhat important, 3 = indifferent, 4 = important and 5 = very important). The other, regarding the association of results related to modalities, ranged from 1 to 5 (1 = not related, 2 = little association, 3 = indifferent, 4 = associated and 5 = totally associated).

To facilitate understanding of the data, we added up the responses considered as "very important" by the professionals. The percentage values of the answers provided by the nurses and nurse technicians were very close, which justifies grouping these participants forming a single group, called the nursing staff.

STATISTICAL ANALYSIS

The results from the questionnaires given to the patients were expressed as mean and standard deviation (quantitative variables) or by frequencies and percentages (qualitative variables), presented in tables. For the comparison between the HD and PD groups for qualitative variables, we applied the chi-square test or the Fisher's exact test. Comparisons between these groups as to the quantitative variables were made considering the Student *t*-test for independent samples.

For comparisons between professionals regarding the qualitative variables, we used the Fisher's exact test. For comparing the evaluation of clinical and psychosocial outcomes between HD and PD, we used the binomial test. The data was analyzed with the SPSS v.13.0. software (Statistical Product and Service

Solutions - Chicago/USA), considering significant the *p* values < 0.05.

RESULTS

PATIENT SOCIODEMOGRAPHIC AND CLINICAL DATA

Data on age, gender, treatment duration, underlying disease, education, marital status and family income are presented for all patients, and also separately for the two groups defined by the type of dialysis treatment (Table 1). The average age of the participants was 55.2 ± 15.0 years, 53.6% were male. Most patients had a maximum education level of primary school (70%) and family income up to three minimum wages (72%). The average time of dialysis treatment was equal to 14.1 ± 7.1 months and the most frequent underlying disease was *diabetes mellitus* (29.5%).

By comparing the dialysis modalities in relation to sociodemographic and clinical variables, significant differences were found between the groups regarding the distribution only in marital status and underlying disease. In the PD group there were significantly more married patients than in the HD group (82.1% and 68.0%, respectively, $p = 0.034$), and most patients had hypertension as underlying CKD disease (28.4% X 15.7%, respectively, $p = 0.041$).

DECISION ON THE FIRST PERFORMED TREATMENT AND KNOWLEDGE OF PATIENTS ON ARRANGEMENTS

Among HD patients, 96.1% started in this mode (Table 2). Among the PD patients, 49.3% began this treatment and the other half on HD, or came from hemodialysis. Data analysis performed on the first treatment indicates the existence of a significant difference between HD and PD between the groups ($p < 0.001$). As for the choice of the first treatment, 76.3% of the patients started the dialysis program exclusively under medical decision and in 17.8% of cases the decision was made together between patients and the medical staff.

Regarding the patients' knowledge about their own dialysis modality, 92.1% of HD patients said they knew what hemodialysis was and 97% on PD reported knowing what peritoneal dialysis was. Concerning the patients' knowledge about the mode they were not on, the majority of PD patients knew what hemodialysis was (83.6%) and just over half (58.2%) of HD patients responded to know about peritoneal dialysis.

TABLE 1 SOCIODEMOGRAPHIC AND CLINICAL DATA*

Variable	Classification	General (n = 220)	HD (n = 153)	PD (n = 67)	p value ** (HD vs. DP)
Age (years)		55.2 ± 15.0	54.1 ± 14.9	57.7 ± 15.1	0.105
Male gender		118 (53.6)	85 (55.6)	33 (49.3)	0.463
Time in treatment (months)		14.1 ± 7.1	14.0 ± 7.2	14.3 ± 6.8	0.820
Baseline disease	Diabetes	65 (29.5)	43 (28.1)	22 (32.8)	0.522
	Hypertension	43 (19.5)	24 (15.7)	19 (28.4)	0.041
	Glomerulonephritis	38 (17.3)	28 (18.3)	10 (14.9)	0.699
	Polycystic kidney	11 (5.0)	9 (5.9)	2 (3.0)	0.510
	Other	63 (28.6)	49 (32.0)	14 (20.9)	0.106
Schooling	No schooling	22 (10.0)	17 (11.1)	5 (7.5)	
	Basic education	131 (59.5)	91 (59.5)	40 (59.7)	
	High School	53 (24.1)	35 (22.9)	18 (26.9)	
Marital status	Higher	14 (6.4)	10 (6.5)	4 (6.0)	0.813
	Married	159 (72.2)	104 (68.0)	55 (82.1)	0.034
Family income (minimum wages)	0 a 1	29 (13.2)	22 (14.4)	7 (10.4)	
	1 a 3	129 (58.6)	88 (57.5)	41 (61.2)	
	> 3	62 (28.2)	43 (28.1)	19 (28.4)	0.721

* Results expressed by frequency (percentage) or mean ± standard deviation. ** Student t-test (quantitative variables); Chi-square or Fisher's Exact test (qualitative variables)

TABLE 2 DECISION FOR THE FIRST TREATMENT AND KNOWLEDGE ABOUT THE DIALYSIS MODES

Question	General (n = 220)	HD (n = 153)	PD (n = 67)	p value ** (HD vs. PD)
First treatment carried out				
- Hemodialysis	181 (82.3)	147 (96.1)	33 (49.3)	
- Peritoneal dialysis	39 (17.7)	6 (3.9)	34 (50.7)	< 0.001
Treatment decision				
- Medical only	167 (76.3)	123 (80.4)	45 (67.1)	
- Medical/family/patient	39 (17.8)	22 (14.4)	17 (25.4)	
- Family only or patient only *	13 (5.9)	8 (5.2)	5 (7.5)	0.086
Knows what hemodialysis is				
- Yes	197 (89.5)	141 (92.1)	56 (83.6)	
- No	23 (10.5)	12 (7.8)	11 (16.4)	0.091
Knows what peritoneal dialysis is				
- Yes	154 (70)	89 (58.2)	65 (97.0)	
- No	66 (30)	64 (41.8)	2 (3.0)	< 0.001

Results expressed by frequency (percentage) * Only one patient had the family decision ** Chi-square and the Fisher's exact test (qualitative variables)

DEGREE OF SATISFACTION AND PERCEPTION OF PATIENTS ON THE DIALYSIS METHODS

Most patients were happy with the treatment they were having (89.5%) (Table 3). The assessment of the negative feelings related to the treatment, according to data from the overall sample, showed the following results: 17.7% report insecurity; 18.6% felt fear;

21.8% reported being stressed; 13.2% claimed to be outraged and 29.1% reported discomfort.

When compared to HD patients, PD patients significantly related their treatment mode to greater safety in the treatment ($p = 0.041$); well-being ($p = 0.002$); maintaining a normal life ($p = 0.002$); freedom ($p < 0.001$) and excitement with life ($p = 0.021$). By associating these factors to another type of

treatment, the HD group perceived PD as providing greater freedom ($p = 0.003$), autonomy ($p < 0.001$) and excitement with life ($p = 0.019$) (Table 3).

ASSESSMENT OF THE CHANGE-RELATED FACTORS AND REFUSAL OF DIALYSIS TREATMENT BY THE PATIENTS

Among the 153 hemodialysis patients, 127 (83.0%) said they would refuse to switch to

peritoneal dialysis. The risk of infection, fear and insecurity concerning PD, lack of someone to help and housing conditions were the most frequently mentioned reasons. Only 6.5% had had been submitted to PD, and most changed treatment mode for clinical reasons (Table 4).

Of the 67 patients on peritoneal dialysis, 62 (92.5%) would refuse to switch to hemodialysis. The

TABLE 3 DEGREE PATIENT SATISFACTION AND UNDERSTANDING ON THE DIFFERENT DIALYSIS MODES

Question	General (n = 220)	HD (n = 153)w	PD (n = 67)	p value**
Degree of satisfaction with the current treatment				
- Happy	197 (89.5)	134 (87.6)	63 (94.0)	
- Indifferent/Unhappy	23 (10.5)	19 (12.4)	4 (6.0)	0.230
Would change dialysis mode				
- Yes	31 (14.1)	26 (17.0)	5 (7.5)	
- No	189 (85.9)	127 (83.0)	62 (92.5)	0.090
Negative feelings ¹ in relation to treatment *				
- Unsafe	39 (17.7)	29 (19.0)	10 (14.9)	0.567
- Fear	41 (18.6)	30 (19.6)	11 (16.4)	0.707
- Stress	48 (21.8)	34 (22.2)	14 (20.9)	0.861
- Outraged	29 (13.2)	25 (16.3)	4 (6.0)	0.050
- Uncomfortable	64 (29.1)	44 (28.8)	20 (29.9)	0.873
Patient perception on the positive factors ¹ associated with the treatment itself †		Own treatment (HD)	Own treatment (PD)	
- Treatment safety	196(90.7)	132 (88.0)	64 (97.0)	0.041
- Well-being	188 (86.6)	124 (82.1)	64 (97.0)	0.002
- Maintaining a normal life	145 (66.5)	91 (59.9)	54 (81.8)	0.002
- Freedom to travel, work, etc.	92 (42.4)	47 (30.7)	45 (70.3)	< 0.001
Autonomy	153 (69.9)	105 (68.6)	48 (72.7)	0.631
- Family life	208 (95.0)	142 (92.8)	66 (98.5)	0.111
- Willingness	159 (72.6)	109 (71.2)	50 (75.8)	0.515
- Excitement	158 (72.1)	103 (67.3)	55 (83.3)	0.021
Patient perception on positive factors ² associated with the other treatment †		Another treatment	Outro Tratamento (como DP percebe HD)	
- Treatment safety	40 (44.9)	17 (37.0)	23 (53.5)	0.139
- Well-being	22 (27.8)	13 (37.1)	9 (20.4)	0.131
- Maintaining a normal life	23 (22.8)	14 (34.1)	9 (22.5)	0.326
- Freedom to travel, work, etc.	24 (27.9)	19 (42.2)	5 (12.2)	0.003
- Autonomy	34 (40.4)	25 (58.1)	9 (21.9)	< 0.001
- Family life	63 (26.7)	30 (65.2)	33 (82.5)	0.090
- Willingness	24 (32.4)	15 (42.9)	9 (23.1)	0.085
- Excitement	22 (31.4)	15 (46.9)	7 (18.4)	0.019

Results expressed by frequency (percentage)* Percentage values calculated in relation to the total number of patients (n = 200). Each item was considered separately** Fisher's exact test (qualitative variables). †We excluded the patients who were unaware of the factor assessed.

TABLE 4 ASSESSMENT OF FACTORS ASSOCIATED WITH TREATMENT CHANGES IN PATIENTS UNDER HEMODIALYSIS

Question	HD (n = 153)
Has been submitted to peritoneal dialysis	10 (6.5)
Reasons for having stopped the peritoneal dialysis*	
- Peritonitis	2 (20.0)
- Low transporter peritoneum	4 (40.0)
- Other	4 (40.0)
Is not interested in changing treatment mode (PD)	127 (83.0)
Reasons for refusing changing to PD**	
- Risk of infection	37 (24.2)
- Fear and insecurity about the treatment	36 (23.5)
- Lives alone, misses someone to help	23 (15.0)
- Living conditions	20 (13.1)
- Lack of a nearby team	16 (10.4)
- Opinion of other patients	7 (4.6)
- In HD I have company	4 (2.6)
- Other	32 (20.1)

Results expressed by frequency (percentage) * Percentage values calculated in relation to the total number of patients who have already been submitted to peritoneal dialysis (n = 10) ** Percentage values calculated in relation to the total number of patients in HD (the same patient may have marked more than one item)

discomfort during treatment, heart problems and loss of freedom were the most frequent reasons for the lack of interest. Of the PD patients, 53.7% had been submitted to HD and clinical factors such as intradialytic hypotension and inadequate efficiency were the main reasons for the change in treatment mode (Table 5).

CLINICAL AND PSYCHOSOCIAL VARIABLES ASSESSMENT BY THE MEDICAL AND NURSING TEAMS

The participants were 10 doctors, 11 nurses and 33 nursing technicians, the majority being women (66%). With regards to clinical practice, 81.5% worked with HD; 13% had experience in HD and PD and only 5.5% had only PD experience. There were no statistical differences when comparing responses between the nursing staff and the medical team when we assessed treatment costs, the clinical and psychosocial factors in the indication of treatment mode and in cases of treatment change.

TABLE 5 ASSESSMENT OF FACTORS ASSOCIATED TO THE CHANGE IN TREATMENT BY PATIENTS UNDER PERITONEAL DIALYSIS

Question	PD (n = 67)
Has been submitted to hemodialysis	36 (53.7)
Reasons for having stopped hemodialysis *	
- Did not want to do	8 (22.2)
- With no vascular access	7 (19.4)
- Other	21 (58.3)
Has no interest in changing treatment mode (HD)	62 (92.5)
Reason for not having interest in knowing about and starting hemodialysis **	
- Not feeling good during the treatment	12 (17.9)
- Feeling unsafe and fear of dying in the machine	10 (14.9)
- Heart problems	8 (11.9)
- Loose of freedom	6 (8.9)
- Problems with vascular access	4 (6.0)
- Opinion from other patients	4 (6.0)
- Other	23 (34.4)

ASSESSMENT OF CLINICAL VARIABLES

Regardless of the mode to be indicated, both the nursing and the medical staffs regarded the variables related to survival as very important, as well, clinical conditions, mortality, morbidity and early referral, had no statistically significant differences when comparing the professionals.

PSYCHOSOCIAL VARIABLES ASSESSMENT

In the assessment of psychosocial variables between the medical and nursing staffs there were no statistical differences. Very important were the variables related to self-care, family support and patient safety for treatment, regardless of the mode to be indicated.

BENCHMARKING THE VARIABLES ASSOCIATED WITH HD AND PD TREATMENTS

The medical and nursing teams indicated more frequently the variables related to quality of life ($p = 0.007$), psychosocial well-being ($p = 0.007$) and clinical health ($p = 0.004$) associated with therapy with DP than the HD treatment.

DECISION ABOUT CHANGING THE TREATMENT MODE BY THE MEDICAL AND NURSING TEAMS

ASSESSING THE CLINICAL VARIABLES IN DECIDING UPON TREATMENT MODE CHANGE

As most important variables in HD change indication for DP, doctors and nursing staff considered most often the lack of vascular access (94.4%) and the presence of coronary artery disease (92.6%). By indicating change of PD to HD, the medical and nursing teams showed higher percentages in the factors related to peritonitis (98.1%) and mechanical catheter problems (90.7%). In the mode change decision, both from HD to PD, as well as the reverse, there was no statistical difference between the groups.

ASSESSMENT OF PSYCHOSOCIAL VARIABLES UPON TREATMENT MODE CHANGE

Doctors and the nursing staff pointed out the quality of life and self-care (98.1%) as the most important variables for changing from HD to PD. To change from PD to HD, the two categories of professionals considered family decision and patient preference (90.7%) as very important variables. For these evaluations, there was no statistical difference between medical and nursing staffs.

DISCUSSION

The issues of choice and decision-making considering CKD treatment methods is a complex process to be taken by the healthcare staff and patients. Each stakeholder has different knowledge and roles in this process, i.e., their behavior in the decision will have consequences that will be felt differently by patients and attending personnel. Therefore, this study sought to investigate who makes the choice of dialysis modality among nephrologists, nursing staff and patients, and which variables reflect the perception of patients and healthcare professionals about treatment.

The study showed that 82.3% of patients started RRT in HD, and most started treatment based solely on their doctor's decision (76.3%). These data corroborate other studies that indicate that most patients start RRT on HD, upon a medical decision only.^{3,4,9,10,13,14} Although not explored in this study, among the possible causes for starting dialysis treatment on HD is a late referral to the nephrologist, often times causing an emergency start on RRT.¹⁸ Other variables such as social problems, a preference for one of the RRT modes and the lack of education

in pre-dialysis may contribute to the selection in favor of HD.

In this sample there is a clear prevalence of PD (30.5%), higher than that found in Brazil (8.6%) and other countries (< 10%) and this reflects our healthcare team's strategy to present the patient both dialysis modalities, taking into account the opinion of the multidisciplinary team, reflecting the prevalence of PD in all our dialysis population.

In our sample we found significant differences between the HD and PD groups related to marital status as there were a higher number of married patients in the PD group (82.1%), reflecting a fundamental factor, which is the support for those living alone, as well as the importance of the relationship with the spouse for performing PD. We also found that single patients or those living alone are more likely to choose HD (15%) as a dialysis option. The same finding was observed in other studies that explored this topic, which analyzed the characteristic of living alone expressed inability or discouragement to perform treatment without the support of another person.^{3,12,14}

Several studies mention the lack of social support as a factor which may contribute to treatment evasion and this has a major negative impact on the likelihood of nephrologists recommending PD. Furthermore, PD is a RRT method performed at home and therefore depends on the ability of patients to take care of themselves.^{9,10,14,15}

When asked about the modalities, the results showed that the knowledge of patients is higher about HD (89.5%) and 30% answered they did not know what PD was. This reflects the doctor's tendency towards HD without the PD having been properly presented and discussed with the patient. Mehrotra *et al.*¹⁹ reported that of the 1,365 patients who started dialysis, 66% did not know about PD. Silva and Silva³ investigated a sample of 21 patients, and found 12 who were totally unaware of this treatment option. Lee *et al.*⁹ reported that, of the 24 patients interviewed, 16 of those submitted to HD knew nothing about PD.

Regarding patient knowledge about the treatment they were not submitted to, we can see that the PD group had more knowledge (83.6%) about the other option when compared to those submitted to HD (58.2%). This may be due to the fact that 49.3% of PD patients had been submitted to HD, which helped

them have a better understanding of the other mode of treatment. In this sense, studies report that regarding self-care practices of a treatment performed at home, such as PD, patients require more information and practice, since it takes more time to learn and develop the ability to self-care.^{9,14,20}

On the patients' perception of factors associated with their own dialysis modality, such as safety, wellbeing, leading a normal life, freedom, autonomy, family life, mood and vigor, we found that these were more important to the PD group than the group in HD - safety in the treatment (97% *vs.* 88%), wellbeing (97% *vs.* 82.1%), closer to a normal life (81.8% *vs.* 59.9%), freedom (70.3% *vs.* 30.7%) and mood (83.3% *vs.* 67.3%), respectively. On the other hand, the comparison between the groups regarding the treatment option they were not submitted to, the HD group viewed PD as providing greater freedom (42.2% *vs.* 12.2%), autonomy (58.1% *vs.* 21.9%) and vigor (46.9% *vs.* 18.4%).

Some HD patients may feel unable to perform PD and opt for continuing with the treatment they are already in. Analyzing this data, we can make some inferences on the self-efficacy of these patients, that although having a positive perception of PD, had no interest in changing their treatment mode. Self-efficacy is defined as the perception that the individuals have on their ability to produce certain levels of performance, which exert influence over events that affect their lives. Thus, one's beliefs can affect one's choices.²¹

When the patient believes he/she can take action to solve a given situation, he/she will be more likely to do it and feel more involved in the decision. The choice made by the patient expresses the need for a mode that promotes greater flexibility, better social life, the desire for a life closer to normal, opting for a treatment mode that may enable them to rearrange their lives.^{3,7,14}

As for the variables that determine the refusal for a dialysis modality, the results indicated that 89.5% of patients were satisfied with their treatment and a change was rejected by 85.9% of the participants. Equivalent to that data, some authors point out that most patients are satisfied with the treatment prescribed and very few have plans to change.^{3,9,12,14}

The data from this study indicated that 23.5% of HD patients and 14.9% of those in PD had no interest in another treatment mode for fear and feeling unsafe

for the alternative method. Anxiety and insecurity experienced by the patients upon considering another dialysis modality due to any technical or accidental disorders that may cause infection and fear as to the possibility of catheter rejection, among other physical discomforts.³ The lack of interest in changing dialysis modality may also be due to the influence of other patients. An example of this is the possibility that the communication between patients in the HD ward, some of which had problems with PD, can affect patients who start HD.^{9,12}

However, it is debatable whether these choices reflect a weighted identification of the most appropriate treatment mode for each patient or if they are more a reflection of salvation of life. The sense of security obtained by familiarity with the treatment appears to be insurmountable for the patient to choose the treatment and change mode and daily routine.⁹

Regarding the variables that influence the choice of treatment by the professionals, the clinical variables related to survival, the patient's clinical conditions, mortality, morbidity and early referral to a nephrologist were considered very important. Among the psychosocial variables, there were family support, patient safety vis-à-vis the treatment and self-care behavior, regardless of the mode to be displayed. Similar results were found in other studies.^{4,6-8,13,15}

Comparing the dialysis modalities, the medical and nursing teams agreed when evaluating the clinical and psychosocial variables with better results in favor of therapy with PD. The data showed that there was a higher percentage of responses associated with variables related to quality of life, psychosocial status and clinical well-being when assessing the PD. This may reveal a preference of the healthcare professionals concerning this mode.

Consistent with these data, similar results were found in other studies that investigated the choice of nephrologists regarding the RRT and the results indicated a preference for PD, especially when considering social needs such as flexibility in lifestyle and higher quality of life.^{7,20,22-24}

The study carried out by Ledebro and Ronco,²⁵ with a sample of 6,595 nephrology professionals, questioned doctors and nurses about what is the best therapy for their patients. Of those participants, 57% were physicians and 28% nurses, who asserted that although there are no results providing evidence that one treatment mode is superior to the other, 49% of

them considered PD as the best initial therapy for better preserving the residual function for longer, having more freedom about their diet, promoting better psychosocial well-being, and greater cardiac and hemodynamic stability.

Furthermore, they claimed that survival in PD is greater than that in HD in the first 2-3 years of dialysis, as well as maintaining a greater autonomy from the start, avoiding greater dependency and depression often present in HD patients. There are other studies that have agreed to this analysis.^{20,23,24} However, it has been shown recently that when you remove the catheter-access HD patients from the analysis, this initial higher survival in PD no longer shows.²⁶

Some authors have reported that PD is a treatment option that is often delayed because HD is the treatment of choice, getting this treatment option because of physical wear, especially by exhausting vascular accesses.^{3,10}

As for the variables that influenced the indication of a change in RRT, the reasons often given for converting HD into PD were the presence of coronary artery disease, intradialytic hypotension, dialysis inefficiency and lack of vascular access. Peritonitis and mechanical problems in the catheter were reported as the most influential to changing from PD to HD. With regards to psychosocial factors, quality of life and self-care were those most responsible for switching from HD to DP and the preference of the patient and family decision were the most considered factors for the conversion from PD to HD. These results corroborate other studies that investigated the topic.^{3,4,7,10}

Rocha *et al.*¹⁰ reported that once HD is started as a RRT, there may be certain inertia by not only by the patients but also the doctors to perform the change of dialysis method. Rocha *et al.*¹⁰ and Romão Junior¹¹ draw attention to the worrying sequence of events ranging from inadequate primary care of patients at risk for CKD until complete exhaustion of dialysis options. It is suggested that a change in this scenario will require a set of measures that emphasize early detection of patients at risk or in the early stages of CKD. Only then patients may be referred to a nephrologist at a stage where it is still possible to slow the progression of CKD and to plan the beginning of RRT as well as empowering the patient with the choice of treatment.

In addition, it is relevant to point out the need to focus on the education about the modalities which will help in the training of the patient for the decision on the dialysis mode.^{3,9,12,14,19,20}

In conclusion, the finding of factors that influence the choice of dialysis modality allows us to infer that this HD preponderance over PD would only change when these factors can be addressed proactively: early identification of patients with CKD avoiding late referral, patient education about the dialysis modalities even after they start in one mode, thereby minimizing rejection to change treatment mode, and finally, the presence of medical personnel experienced in both dialysis modalities.

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