Original Article

Pendular migration and health: profile of Paraguayans undergoing dialysis treatment in an international border municipality

Migração pendular e saúde: perfil de paraguaios em tratamento dialítico em município de fronteira internacional

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ABSTRACT | OBJECTIVE: To characterize the socio-demographic and clinical profile of patients of Paraguayan origin on the hemodialysis treatment in Foz do Iguaçu, Paraná. **METHOD:** exploratory and descriptive research was carried out with 23 Paraguayan patients whose data were extracted from the specialized nephrology service accredited to the UHS database. Descriptive statistics analyzed the data. **RESULTS:** regarding the socio-demographic profile, it was observed that 73.9% were male, 65.2% married, 26.1% with incomplete elementary education, 43.45% were in the age range of 40 to 59 years, and 47.85% aged ≥ 60 years. As for the clinical characteristics, 73.9% used catheters as their first access, and 78.3% performed their first hemodialysis session on an emergency basis; diabetes and hypertension were the main underlying diseases, and 39.2% were not under nephrologist care in the non-dialytic phase. **CONCLUSION:** the profile observed was mostly men over 50 years old, living with a partner and children, who had the UHS as a funder of treatment and started treatment late, on an emergency basis. Because of these findings, the availability of support services for family members and companions is suggested, and the strengthening of Primary Care in these territories.

DESCRIPTORS: Border Areas. Renal Dialysis. Chronic disease. Health Care. Unified Health System.

RESUMO | OBJETIVO: Caracterizar o perfil sociodemográfico e clínico de pacientes de origem paraguaia em tratamento de hemodiálise em Foz do Iguaçu, Paraná. **MÉTODO:** Pesquisa exploratória e descritiva realizada com 23 pacientes paraguaios cujos dados foram extraídos do banco de dados do serviço especializado de nefrologia credenciado ao SUS. Os dados foram analisados por estatística descritiva. **RESULTADOS:** Em relação ao perfil sociodemográfico, observou-se que 73,9% eram do sexo masculino, 65,2% casados, 26,1% com ensino fundamental incompleto, 43,45% estavam na faixa etária de 40 a 59 anos e 47,85% com idade ≥ 60 anos. Quanto às características clínicas, 73,9% usaram cateter como primeiro acesso e 78,3% realizaram a primeira sessão de hemodiálise em caráter de emergência; a diabetes e a hipertensão foram as principais doenças de bases e 39,2% não estavam sob cuidados de nefrologista na fase não dialítica. **CONCLUSÃO:** O perfil observado foi, em sua maioria, homens na faixa etária acima de 50 anos, que vive com companheira(o) e filhos, que tiveram o SUS como financiador do tratamento e iniciaram tardiamente o tratamento, em caráter emergencial. Em razão desses achados, sugere-se a disponibilidade de serviços de apoio aos familiares e acompanhantes, além do fortalecimento da Atenção Básica nesses territórios.

DESCRITORES: Áreas de Fronteira. Diálise Renal. Doença Crônica. Atenção à Saúde. Sistema Único de Saúde.

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Introduction

The increased prevalence of chronic kidney disease (CKD) and its repercussions on the morbidity and mortality of those affected has become a worldwide public health problem.[1] In several countries, there is an estimated prevalence of 8% to 16% of people with some degree of impaired renal function, constituting in the future a large group of individuals who will require renal replacement therapy (RRT) if this dysfunction progresses, evolving to the final stages of CKD.[2]

Border regions constitute an analytical and spatial cutout of multiple social, political, economic, and cultural realities and can become a space of transcultural and identity conflicts. In these spaces, the local and the international articulate and establish their own dynamics, built by the border people, making the border a differentiated form of territorial organization in the capitalist order, also recreating other regional aspects. Bilateral or multilateral territorial planning policies have repercussions on the population flows in these regions because there are no territories without subjects and, therefore, every territory is made through social subjects.[3]

With the approval of Federal Law No. 13,445 in 2017, border residents are guaranteed the same health care in the Unified Health System (UHS) that Brazilians have. Border residents are people who live in neighboring countries, in an area of strong social, economic, political, and cultural interaction with Brazilians, but they are not considered migrants; because they do not cross the border from one country to another to settle in the other country, since they keep their habitual residences in their country of origin.[4]

Pendular migration can be defined as daily movements of border residents between their place of residence and places of work or study, especially when this mobility implies living in a certain municipality and working or studying in another, without a definitive change of place of residence. This type of mobility also occurs in border regions to seek health care, influencing the planning of services and actions, since adherence to treatment and the prognosis of patients in commuting are impacted by delayed diagnosis and reduced access.[5-6]

In the UHS, this pendular mobility for health care is legally provided for in Federal Law No. 8,080 of 1990 when it emphasizes the regionalized organization of the system, providing that municipalities establish mechanisms such as inter-municipal consortia to offer joint actions and services. More recently, Decree No. 7508 of 2011 regulates the roles of the federal entities in the regions and health networks and defines a health region as a continuous geographic space consisting of groups of adjacent municipalities, delimited by cultural, economic, and social identities and shared communication networks and transportation infrastructure, to integrate the organization, planning, and execution of health actions.[7]

However, commuting for public health services becomes more complex when international mobility is considered when two countries border each other, and social and economic disparities determine differences in the supply and quality of health services.[8] This is the case of the triple border between Brazil, Paraguay, and Argentina, where the municipality of Foz do Iguaçu has a daily population flow that exceeds the population base on which the transfer of funds to the municipal system is calculated, which implies financial difficulties for the maintenance of health services and the establishment of barriers to the access of non-resident border residents to these services.[5]

It is understood that the problem of underfunding the UHS does not result from the assistance to non-national border residents in these municipalities since the lack of financial resources for the UHS is not observed only in border municipalities. However, this condition motivates municipal administrations to provide health care to foreigners in urgent, emergency, and primary care but restricts access of non-national border residents to specialized services of greater complexity.[5,9-10] Even so, many non-national border residents can access highly complex assistance by the UHS in border municipalities for chronic diseases, such as hemodialysis.

Foz do Iguaçu has registered a significant increase in the floating population composed of migrants, tourists, and students from Brazil and abroad who seek care in the Brazilian public health system.[11] It is estimated that in Paraguay, there are 176 dialysis patients per million inhabitants, being one of the

countries with the lowest coverage of this service, with only 1,184 patients with Chronic Kidney Failure (CKF) receiving hemodialysis treatment in the whole country.[12]

Unlike the Brazilian health system, which assumes the universality of access and completeness of care, ensuring dialysis treatment, even if offered in private services, the Paraguayan health system is subdivided into public, with low coverage, and private, whose medical and welfare services represent 21.6% of the coverage of assistance. Therefore, the Paraguayan health system has a high segmentation of service providers and does not guarantee full coverage in treating people with CKF.[13]

In this scenario, where the difficulties encountered by Paraguayan patients for treatment in their country of origin favor the search for services in Brazil, this study aimed to characterize the socio-demographic and clinical profile of Paraguayan patients undergoing hemodialysis treatment in a reference service for nephrology in Foz do Iguaçu, Paraná.

Method

Descriptive research with a quantitative approach carried out in a private dialysis service affiliated to the Unified Health System (UHS), reference in high complexity for nephrology, located in Foz do Iguaçu, a Brazilian municipality, belonging to the state of Paraná, bordering Argentina and Paraguay.

The service referenced as the locus of the study started its activities in 1988, offering renal replacement therapy (RRT), hemodialysis, peritoneal dialysis, and clinical outpatient care for patients in conservative treatment and kidney transplant patients. In January 2018, this service served 269 patients on hemodialysis and 23 patients on peritoneal dialysis, totaling 292 patients on dialysis treatment, and of these, 23 (8%) individuals were of Paraguayan nationality were performing hemodialysis.

The study population was all patients of Paraguayan nationality (n=23) registered as active in the service on dialysis treatment. Data collection occurred in February and April 2018.

Data related to the socio-demographic profile (gender, age, marital status, who lives with, presence of children, education, employment status, health insurance) and clinical profile (start of treatment, location of the first session, type of access at first session, underlying diseases, access to nephrologist) were collected from electronic medical records using the NephroSys Program. Such information is available at the research locus, including clinical evolution, demographic, and socioeconomic data.

The data was organized in Excel spreadsheets and later analyzed using descriptive statistics and presented in tables. The Human Research Ethics Committee approved this study.

Results

Table 1 characterizes the patients according to gender, marital status, presence of children with whom they live, and education. Among the Paraguayans in treatment, it stands out that 73.90% (n=17) are men, 87.3% (n=18) are over 50 years old, 69.56% (n=16) have and live with a partner, most have children (78.30%), but 56.5% (n=13) live with children.

The employment relationship, important information for the construction of indicators about the social determination of the health-disease process and the relationship between work and illness, was not recorded in the medical records of 87.10% (n=20) of patients. As for the commute from home to the nephrology clinic, 34.8% (n=08) use their own car, and 26.0% (n=06) use public transportation to get to the dialysis unit. UHS was the main funder of treatment for 82.6% (n=19) of Paraguayan patients, as presented in table 1.

Table 1. Socio-demographic characterization of Paraguayan patients on dialysis treatment. Foz do Iguaçu, PR, Brazil, 2018. (N=23)

Variables	n	%
Sex		
Male	17	73.90
Female	06	26.10
Age group (years)		
30-39 years	02	8.70
40-49 years	03	13.00
50-59 years	07	30.45
≥ 60 years	11	47.85
Marital status		
No partner - single, divorced, widowed	06	26.10
With partner - married, consensual union	16	69.56
No information	01	4.35
Children		
Yes	18	78.30
No	04	17.40
No information	01	4.30
Living in the same household		
Parents	01	4.30
Children	13	56.50
Husband/Wife	16	69.56
Alone	01	4.30
Education		
Incomplete Primary Education	06	26.10
Complete Higher Education	01	4.30
No information	16	69.60
Employment Relationship		
Employed	01	4.30
Autonomous	01	4.30
Retired	01	4.30
No record	20	87.10
Travel to the clinic		
Urban public transportation	04	17.40
Inter-municipal public transportation	02	8.70
Own car	08	34.80
Carpooling	03	13.00
No record	06	26.10
Type of Health Insurance		
UHS	19	82.60
Private	04	17.40

Source: NephroSys Information System, 2018.

Regarding the clinical characterization, about the place of the first hemodialysis session, it was found that 56.5% (n=13) of Paraguayan patients started hemodialysis treatment at the hemodialysis clinic. Concerning the first type of vascular access, the arteriovenous fistula was observed for 17.4% (n=04) and that 91.3% (n=21) started the dialysis treatment at more than 40 years of age and also that 60.90%% (n=14) had 1 to 4 years of treatment. The use of catheters as the first access occurred in 73.9% (n=17) of patients. The study identified that 78.3% (n=18) had their first hemodialysis session on an emergency basis. The two main underlying diseases were diabetes mellitus in 73.9% (n=17) and hypertension in 65.2% (n=15). Before starting hemodialysis treatment, 39.2% (n=09) of them were not under nephrologist care (Table 2).

Table 2. Clinical and treatment characterization of Paraguayan patients on hemodialysis treatment. Foz do Iguaçu, PR, Brazil, 2018. (N=23)

Variables	N	%
Place of the first hemodialysis session		
Hemodialysis clinic	13	56.50
Hospital	08	34.80
No information	02	8.70
Age group when treatment started		
30-39 years	05	21.70
40-49 years	02	8.70
50-59 years	10	43.50
≥ 60 years	06	26.10
Time in treatment		
< 1 year	02	8.70
1 a 4 years	14	60.90
≥ 5 years	07	30.43
First type of access		
Arteriovenous Fistula	04	17.40
Catheter	17	73.90
No information	02	8.70
Character of the first hemodialysis session		
Elective	03	13.00
Emergency	18	78.30
No information	02	8.70
Base illness		
Arterial Hypertension	15	65.20
Diabetes Mellitus	17	73.90
Cardiovascular Disease	04	17.40
Under nephrologist care		
No	09	39.20
Yes - less than 6 months ago	02	8.70
Yes - between 06 and 12 months	08	34.80
Yes - more than 12 months ago	03	13.00
No information	01	4.30

Source: NephroSys Information System, 2018.

Discussion

The predominance of men over 40 years old, married, and low education among the surveyed subjects was also identified in other studies.[14-16] There are different levels of risk for chronic diseases between men and women, considering that between genders, there are inequalities in working and living conditions that expose them to other factors, such as stress, chemical dependency (alcohol and tobacco), overweight, and high-fat food intake.[17] It is important to highlight that most Paraguayans undergo dialysis treatment in another country, are married, and have children may interfere with these subjects' family dynamics and support since the treatment is long and distant from home.

The socioeconomic profile of patients on dialysis is little addressed in epidemiological studies of foreigners or migrants, being insufficiently studied the relationship between occupation, type of employment relationship, and kidney disease. There is also the problem of underreporting this information in medical records, making it difficult to analyze the social determinants of illness. Other studies[5,9] have also pointed out the lack of records of services provided to foreigners, making it challenging to define this population's profiles and estimate the demands closer to the social realities.

The documents required for care by the UHS, such as the UHS card, family card, proof of residence, and national identity document, are one of the main barriers faced by non-national border residents since they can be denied access or get it with lower quality than Brazilians. Such restriction has created a culture of fraudulent data on the residence, using false addresses or other resources to take advantage of UHS care, consequently hindering the real dimension of the demand of foreigners for UHS services in these municipalities.[5,9-10] In addition, the absence of important information about work-related variables or the transportation used to access the services makes it difficult to understand the social determinants of illness. Long distances traveled to health services reduce access and produce health effects such as delayed diagnosis and poor adherence to treatment.[5]

A significant percentage of Paraguayan patients with a treatment time of more than five years were identified, although most had a treatment time like other studies conducted in Brazil.[17-18] However, it is observed that the beginning of treatment is late among them, besides verifying that the hemodialysis clinic was the most used place for the first dialysis session and that an important percentage of patients performed the first session in the hospital, corroborating the emergency character in the first type of session and the need to use a central catheter as an access route at the beginning of the treatment. These results suggest greater difficulty in access to health care among border residents in Paraguay.

According to the findings of this study and others, UHS was the main funder of dialysis treatment, ranging from 75.4% to 86.7%.[15-16,18] It highlights the need for health systems with comprehensive care coordinated from primary care for early diagnosis and adequate monitoring of chronic diseases, as suggested by the Clinical Guidelines for the Care of CKD Patients (2014)[19] and of the Referral Protocols from Primary Care to Specialized Care[20] in which one of the prioritized specialties was nephrology.

However, for the study population, the fact that they face difficulties in access due to geographic distance and organizational barriers, the active search for and follow-up of patients in the international territory is practically unfeasible, given the low integration between the health services on both sides of the border pointed out in other studies.[5,8-9]

Systemic arterial hypertension (SAH) and diabetes mellitus (DM) are highly prevalent among the underlying diseases in CKD patients, according to other studies.[15-16] Despite this, most patients in this study with SAH and DM did not have a conservative follow-up with a nephrologist. Subjects who belong to risk groups that predispose to CKD should have access to a comprehensive health approach from primary health care levels, performing diagnosis and monitoring in the early stages of the disease, and access specialists in medium and high complexity services when necessary.[21-22]

One of the foundations of CKD treatment is an early referral to a nephrologist to reduce the need for RRT. Patients referred early for specialized follow-up have shorter hospital stays after starting dialysis therapy and lower lethality rates in the first year of RRT. In addition, they are less likely to need emergency dialysis, have better blood pressure control and less acute pulmonary edema, and lower treatment costs.[22]

From the profile of Paraguayan patients undergoing dialysis treatment in an international border municipality, we propose to reflect on the importance of national health systems of universal and integral access. Besides manifesting themselves at an advanced stage when patients arrive at the services, the difficulties in accessing treatment on one side of the border impact the prognosis and the conditions for coping with the disease.

Studies that describe the profile of patients in advanced stages of chronic diseases, as in the case of dialysis treatment, can be useful in defining prevention programs at primary care levels and indicate the need for border countries to harmonize the legislation of their health systems in order to guarantee universal and integral supply of services to ensure the right to preventive actions and restorative health treatment for their citizens.

Submitting to leave the residence in one country, even temporarily, to obtain health care in another, in a moment of fragility, and facing uncertainties about access and continuity of treatment has an impact on the health of border residents. Therefore, it must be a concern not only to the patient and his family but to the managers and health professionals who formulate public policies and researchers to understand more deeply the differences in the profiles of chronic illness in this population. It is also noteworthy that in border regions between Brazil and other countries, there is a need for studies to identify initiatives and local-regional opportunities for integrative actions of services that minimize the asymmetries and inequities between health systems.

· Such considerations allow pointing out that in municipalities located in international border regions, the UHS has become an important health resource for foreigners who do not have a health system with universal access and comprehensive care and can be configured as a unique experience motivating transformations in the health systems of neighboring countries. Furthermore, because of this profile, the availability of support services for family members and companions, such as support homes, is suggested, as these services are available only in some specific locations in Brazil, serving as a reference for smaller municipalities and other countries, in the case of international border regions.

Finally, it should be noted that, since this is a study with secondary data, the limits are related to the absence of important records, such as the occupation of the patients assisted, and other variables that may clarify aspects related to the difficulties and changes in the individual and family way of life when seeking health services in another country, pointing to the need for further studies for greater depth.

Conclusion

Through this research, it was possible to know the socio-demographic and clinical profile of patients of Paraguayan origin on hemodialysis treatment, high complexity service in nephrology in a city located in the international border region. These are mostly male patients, over 50 years old, living with a partner and children, and who had the UHS as a funder of the treatment. Regarding the clinical aspects, it was observed that most had been performing hemodialysis for two to five years, the first access occurred with the use of a catheter, and the first hemodialysis session was done on an emergency basis and presented diabetes and arterial hypertension as the main underlying diseases. A nephrologist did not accompany many of them. This situation can be explained by difficulties in access to Primary Care in the country of origin or even by low resoluteness in managing underlying diseases, which leads to late initiation and emergency character in a very advanced stage of CKD.

In this sense, we highlight the importance of strengthening and equalizing the principles and guidelines of the Primary Care network in border municipalities on both sides of the border to ensure universal access and resoluteness, avoiding further consequences for the population.

Authors' contributions

Pereira E participated in the conception and design of the research, in the collection, analysis, and interpretation of data, statistical analysis, writing the manuscript, and critical revision of the manuscript as to important intellectual content. Carvalho M participated in the conception and design of the research, the analysis and interpretation of the data, the statistical analysis, the writing of the manuscript, and the critical revision of the manuscript for important intellectual content.

Conflicts of interest

No financial, legal, or political conflicts involving third parties (government, private companies, and foundations, etc.) have been declared for any aspect of the submitted work (including but not limited to grants and funding, advisory board participation, study design, manuscript preparation, statistical analysis, etc.).

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