



Socio-demographic, clinical and laboratory profile of patients submitted to hemodialysis

Perfil sociodemográfico, clínico e laboratorial de pacientes submetidos à hemodiálise

Perfil sociodemográfico, clínico y laboratorial de pacientes sometidos a hemodialisis

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The aim of the study was to characterize the patients with Chronic Kidney Disease submitted to hemodialysis in Rio Grande do Sul, Brazil, regarding the socio-demographic, clinical and laboratory characteristics. It is a cross-sectional study with 90 hemodialysis patients made in July and August 2013, through interviews. The results showed that 77.8% of the patients were male, with average age of 53.52 years and 66.7% were married. The average of schooling was 6.61 years; the Unified Health System assisted 86.7% of the cases. The average time of hemodialysis was 42.99 months. The most frequent etiology of the disease was systemic hypertension, 36.7%. The most used medicine were vitamins and minerals. Most laboratory exams were within the standards of reference. The data of the study can subside discussions among the health professionals involved in order to improve assistance and provide a better quality of life to the patient.

Descriptors: Renal Insufficiency, Chronic; Hemodialysis Units, Hospital; Epidemiology; Patient Care.

O objetivo do estudo foi caracterizar os pacientes com Doença Renal Crônica em hemodiálise em um serviço do Norte do Rio Grande do Sul, Brasil, quanto aos aspectos sociodemográficos, clínicos e laboratoriais. Estudo transversal realizado com 90 pacientes da hemodiálise entre os meses de julho e agosto de 2013, mediante entrevista. Os resultados demonstraram que 77,8% eram do sexo masculino, com idade média de 53,52 anos, sendo 66,7% casados. A média dos anos de estudo foi 6,61 anos, o Sistema Único de Saúde atendia 86,7%. O tempo médio de hemodiálise foi 42,99 meses. A etiologia da doença mais frequente foi a hipertensão arterial sistêmica em 36,7%. Os medicamentos mais utilizados foram os vitamínicos e minerais. A maioria dos exames laboratoriais encontrava-se em desacordo com os padrões de referência. Os dados do estudo poderão subsidiar discussões entre os profissionais envolvidos, para aprimorar a assistência e melhorar a qualidade de vida dos doentes.

Descritores: Insuficiência Renal Crônica; Unidades Hospitalares de Hemodiálise; Epidemiologia; Assistência ao Paciente.

El objetivo del estudio fue caracterizar los pacientes con Enfermedad Renal Crónica en hemodiálisis en un servicio del Rio Grande del Sur, Brasil, con relación a los aspectos sociodemográficos, clínicos y laboratoriales. Estudio transversal realizado con 90 pacientes de hemodiálisis entre julio y agosto de 2013, mediante entrevista. Los resultados señalaron que 77,8% eran del masculino, con edad media de 53,52 años, siendo 66,7% casados. La media de años de estudio fue 6,61 años, el Sistema Único de Salud atendía 86,7%. El tiempo medio de hemodiálisis fue 42,99 meses. La etiología de la enfermedad más frecuente fue la hipertensión arterial sistémica en 36,7%. Los medicamentos más utilizados fueron vitaminas y minerales. La mayoría de los exámenes de laboratorio no se encontraba según los estándares de referencia. Los datos del estudio podrán subsidiar discusiones entre los profesionales involucrados para mejorar la atención y calidad de vida de los enfermos.

Descriptor: Insuficiencia Renal Crónica; Unidades de Hemodiálisis en Hospital; Epidemiología; Atención al Paciente.

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Introduction

The age of the population is a natural irreversible and world phenomenon. The elderly population in Brazil has grown quickly, in 2025, around 32 million people will be 60 years of age or older, and the country will rank the sixth position as to the number of elderly. Due to the demographic transition there have also been changes in the profile of morbidity and mortality, raising the level of chronic diseases, among them Chronic Kidney Disease⁽¹⁾.

The Chronic Kidney Disease can be defined as a progressive and irreversible deterioration of the renal function once the kidneys are not able to keep the hydro electrolytic and metabolic balance of the body⁽²⁾. In the year 2000 this disease kept 42,695 patients undergoing programs of dialyses. In 2011 this figure more than doubled, there were 91.314 patients submitted to hemodialysis distributed among 643 units in Brazil⁽³⁾.

The demographic and social economic aspects are very important in the progression of the Chronic Kidney Disease and the maintenance of life of the patients undergoing hemodialysis, once if these conditions are unfavorable the patients can have a less effective treatment of the disease and aggravate his clinical picture. As another important factor, the clinical picture of the patient is fundamental to have a better quality in the hemodialysis treatment, the identification and the corrections of the main complications and comorbidities presented by the patient are essential⁽⁴⁾.

Under this perspective the Chronic Kidney Disease provokes significant alteration and impact in the everyday life of the patient, many times leading to the rupture in several aspects of his life, with a limiting repercussion concerning his body, at work, and restriction in the daily activities⁽⁵⁾. That is why it is fundamental to widen the knowledge on the context of life of the patient and the implications of hemodialysis treatment, once it allows the improvement of interdisciplinary care and in the relations along the

process, providing individualized and personalized assistance to each human being in this environment. At the hemodialysis centers, among the health professionals who take care, the nurse is outstanding, considered as an active agent in the process, besides being one of the responsible professionals for the planning and coordination of the whole assistance.

There is no publishing on this theme in the northern region of Rio Grande do Sul. This gap can make the relations of care of the patients with Chronic Kidney Disease difficult. Therefore, this study has social relevance once it is believed that the results can subsidize discussions in the elaboration of new strategies and actions for the knowledge of this matter.

Under this perspective the following question is made: which is the social demographic, clinical and laboratorial profile of the patient submitted to hemodialysis in a service of hemodialysis in the countryside of Rio Grande do Sul? To answer this question, the objective of this study was to characterize the patient with Chronic Kidney Disease undergoing hemodialysis at a service in the north of Rio Grande do Sul, regarding the social demographic, clinical and laboratorial aspects.

Method

It is a cross-sectional study made in a reference hospital in Passo Fundo, RS, Brazil, in July and August, 2013. Of the 132 patients assisted at the service, 26 did not accept to participate in the study, 16 were excluded for not complying with the inclusion criteria. So, 90 patients participated in this study. The criteria of inclusion of the study were: be older than 18 years of age, with the diagnosis of a Chronic Kidney Disease undergoing hemodialysis. The following patients were excluded: the ones with infections diagnosis, cancer and the ones who had been hospitalized, besides those who had been attacked by neurological problems which 7 made them unable to answer the questionnaire.

The data collection was made through an

individual interview with the participant of the study during a session of hemodialysis. The instrument applied had questions on the social demographic conditions such as age, marital status, profession, schooling and income. After that there was the evaluation of the electronic medical records of the patient, and the clinical data, the etiology of the Chronic Kidney Disease, time of hemodialysis, associated comorbidities and the use of medicine were collected.

For the structure of the data bank the Excel 2007 and Epi Info™ 3.5.1 applicative were used and for the analyses the statistic programs R 2.10.0 for Windows was used. The data were analyzed in a descriptive manner through absolute and relative frequencies.

The Study followed the guideline of the Resolution no. 466/12 of the National Counsel of Health on the participation of people in researches, complying with the ethical aspects of consent of the hospital, of secrecy and anonymity of the participants. The project was approved by the Committee of Ethics and Research of the University of Passo Fundo under Legal Opinion 158.647.

Results

Of the 90 patients with diagnosis of Chronic Kidney Disease undergoing hemodialysis, 77.8% (n=70) were male. The average age was 53.5 (± 16.3) years of age, ranging from 21 to 83 years of age. As the marital status, 66.7% were married and 22.2% were single. The average years of schooling were 6.6 (± 3.8) years and 83.3% were white and catholic, respectively. The main agreement for the use of hemodialysis was the Unified Health System which assisted 86.7% of the patients.

Concerning the profession they had before the hemodialysis treatment, 50% reported to work by themselves and 42.2% had operational activities (general services, mechanic, bricklayer, snack vendor). As personal income, 52.2% earned one minimum

wage and 31.1% earned between one and two minimum wages. When questioned about the family wages monthly, 35.6% informed earned between one and two minimum wages. Of the total number of the sample, 84.4% (n=76) lived in their own houses and 40% (n=36) together with two more people.

The average time of hemodialysis was 42.9 (± 36.4) months, the minimum time was one month undergoing hemodialysis and the maximum, 180 months. As to the etiology of the kidney disease, 36.7% of the patients had systemic arterial hypertension as a consequence of the Chronical Kidney Disease. The most frequent comorbidities were the systemic arterial hypertension which attacked 73.3% of the interviewees and 32.2% diabetes mellitus. Of the interviewees 72.2% still presented diuresis.

The average of medicine per patient was 8.6 (± 2.4), among them the most used were vitamins and minerals (97.8%), diuretics (72.2%), hypertensive drugs (71.1%) and hormones (43.3%). (Table 1). The most used vitamins and mineral were calcium carbonate, vitamin B complex, calcitriol, ferrous sulfate and vitamin C. The furosemide was the most used diuretic, enalapril was hypertensive drug and the hormone was human erythropoietin.

Table 1 - Group of medicine used by patients undergoing hemodialysis at a unit of nephrology

Medicine	n (%)
Vitamins and minerals	88 (97.8)
Diuretics	65 (72.2)
Hypotensive	64 (71.1)
Hormones	39 (43.3)
Gastric Protector	34 (37.8)
Anti-inflammatory	31 (34.4)
Analgesic	14 (15.6)
Anxiolytic/Antidepressants	10 (11.1)

As to the laboratory exams, most of the patients were not within the standards of reference, as seen in Table 2.

Table 2 - Routine laboratory exams of patients undergoing hemodialysis at a unit of nephrology

Exams	Results of the exams	
	Normal n (%)	Altered n (%)
Parathormone	26 (28.9)	64 (71.1)
Phosphorus	32 (35.6)	58 (64.4)
Iron	62 (68.9)	28 (31.1)
Glucose	66 (73.3)	24 (26.7)
Potassium	70 (77.8)	20 (22.2)
Calcium	73 (81.1)	17 (18.9)
Total cholesterol	76 (84.4)	14 (15.6)

Concerning the dosage of serum albumin 92.2% of the patients presented a decrease, being with slight depletion 6.7%, moderate 84.4% and severe 1.1%. The data show that 42.2% of the patients of the study, presented alterations in the levels of creatinine and 100% presented alterations in the pre-dialysis urea and also 33.3% concerning Kt/v. The serum of the LDL cholesterol was altered in 25.6% of the patients and the HDL cholesterol in 66.7%. The hemoglobin presented alterations in 72.2% and the hematocrit in 68.9% of the patients. There were alterations in the results of transferrin and ferritin, in 83.3% and 78.9% of the researched subjects, respectively.

Discussion

It is highlighted that the most of the patients were male, and the average age range was 53.5 years. As to the marital status, most of them were married. These findings are similar to the ones from a study made in distributed clinics dialysis in different regions in Brazil, where most of the patients were male (58.4%) and 63.1% were 60 years old or younger. As to marital status, 58.5% were married or in a stable union⁽⁶⁾. Especially in São Paulo there were similar results to gender and age range where most of them were male (59.7%), average age of 43 years \pm 13.4⁽⁷⁾. In Chile, the data found confirmed that, with average age of 58.8 years, most of the were male (57.9%) and

53.7% were married⁽⁸⁾.

Most of the patients under hemodialysis treatment used the Unified Health System and 50% reported similar amounts to the current minimum wage as monthly income. Such situation was found in the present study and confirmed a wider research made in different venues in Brazil⁽⁴⁾.

Data related to the etiology of the kidney disease are similar in the country. A study developed in Natal, RN, Brazil, shows that 71.4% of the patients had arterial hypertension. The diabetes mellitus is another pathology with a high proportion, oscillating between 25.7%⁽⁹⁾ to 47.7%⁽¹⁰⁾ of the interviewees. The arterial hypertension varied from 34.2% to 37.1%^(3,10), of the present study and inserted in this interval. The presence of systemic arterial hypertension associated to diabetes mellitus was the main etiology of the kidney disease in a study made in Ceará, Brazil⁽¹¹⁾.

The average time of hemodialysis was 42.9% months and the most frequent comorbidities were systemic hypertension and diabetes mellitus. A research made in João Pessoa, Brazil, found that 70% of the researched subjects undergoing hemodialysis within less than three years⁽¹²⁾. Regarding the most frequent comorbidities, a study made in São Paulo, Brazil, found systemic hypertension in 86.9% of the interviewed patients and diabetes mellitus in 45.3%⁽¹³⁾.

A study made in Jequié, Bahia, showed that among the subjects interviewed, 41% males and 40.9% females were undergoing hemodialysis from one to three years. In our study, 77.8% were male. Concerning most frequent comorbidities, the study made in Bahia found that among men, 25% presented neurological and peripheral vascular diseases. In our study, the most frequent disease was systemic hypertension in 36.7%⁽¹⁴⁾.

The most frequent used groups of medicine were vitamins and minerals, diuretics, hypotensive and hormones. A research made in Guarapuava, PR, Brazil, showed that regarding the use of supplements, 100% used human erythropoietin, 54.5% used

calcium carbonate, 54.5% used injections of iron, and 9% vitamin D⁽¹⁵⁾.

Another study made at the University Hospital of the Federal University of Juiz de Fora, showed that 30.7% used vitamins and minerals, 23.6% took stimulators of erythropoiesis (hormone), 62.3% used angiotensin converting enzyme inhibitors (antihypertensive) and 51.9% used statins. A quantity of medicine per patient was, in average, 5.7⁽¹⁶⁾. In our study 97.8% used vitamins and minerals, hypotensive 71.1%. All the patients participating in this study used vitamin D replacement. Vitamin D has an important role in regulating the mineral and bone metabolism, promoting bone mineralization and inhibiting the synthesis and secretion of parathormone. The lack of this vitamin can lead to secondary hyperparathyroidism and osteomalacia. It is important to keep control of the use of vitamin D replacement, once it can lead to hypercalcemia, hyperphosphatemia and extraosseous calcification.

Concerning the laboratory exams, most of the analyzed exams were away from the standards of reference. Even with the use of replacement of vitamins and minerals, there was alteration in the serum levels of calcium and iron. A study made in Chile also found several altered laboratory exams, such as the value of hematocrit, creatinine, parathormone, ferritin, calcium and phosphorus. And it is also showed that the hypoalbuminea and the creatinemia affected the quality of life of the Chronic Kidney patient undergoing hemodialysis⁽⁸⁾. However, another study made in Belém, PA, Brazil, found values which were recommended by the Brazilian Society of Nephrology for ionic calcium, phosphate and parathormone. But still 31% of the researched patients had their levels of ionic calcium altered, as well as the phosphorus in 48.6% of the patients; the parathormone with alteration in 60.8% of the researched subject⁽¹⁷⁾. In our study, phosphorus was altered in 64.4% and the parathormone in 17.1%, these levels were higher than the ones of the study made in Belém, PA.

A research made in Minas Gerais found that

75.8% of the patients with Chronic Kidney Disease presented insufficient or deficient levels of vitamin D, The values of serum creatinine were altered and the total cholesterol presented levels which were considered normal⁽¹⁸⁾.

Conclusion

This study tried to know the profile of the patient undergoing hemodialysis. It was concluded that the most of the patients with Chronic Kidney Diseases undergoing hemodialysis are male, and with average age of 53.5 years, marriage. They have a low level of schooling and 86.7% have as the health plan the Unified Health System. As personal income, most of them earned one minimum salary and lived in their own houses. The average time of hemodialysis was 42.99. The etiology of the most frequent kidney diseases is systemic hypertension concerning the use of medicine the main ones are vitamins and minerals, followed by diuretics, hypotensive and hormones. As to the laboratory exams most of them were away from the standard of reference. That is why, the control of the biochemical indicators is useful for the evaluation of the risk of mortality in chronic kidney patients and from then on, an adequate individual therapeutic approach was used for each patient.

This study shows the need to promote interdisciplinary educational actions with the patients undergoing hemodialysis, approaching relevant aspects of the diseases, the treatment, the prevention and the self-care. Other studies must be made to highlight interdisciplinary interventions of control of intra-dialysis complications. Therefore, there is the need to investigate other aspects in order to focus and optimize the interdisciplinary care of patients submitted to hemodialysis.

Collaborations

Telles CT, Dobner T and Bettinelli LA contributed to the conception of the work, collection,

analysis and interpretation of the data and the writing of the article. The Authors Pomatti G and Fortes VF contributed to the data collection and writing of the article. Brock F participated in the analysis and interpretation of the data. All the authors revised and took part in the process of revision and approved the final version to be published.

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