Sociodemographic Conditions of Angolan Patients with New Pathologies After Hemodialise Treatment

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Abstract

Kidney disease is a global public health problem, affecting more than 750 million people worldwide, the magnitude and impact of kidney disease are better defined in developed countries, clinical evidence suggests that in developing countries like Angola, the impact may be greater.

Objective: To verify the sociodemographic conditions of Angolan patients with new pathologies after hemodialysis treatment.

Method: It was conducted as a descriptive, cross-sectional and quantitative approach, in a population consisted of 100 patients undergoing hemodialysis at the Hemodialysis Pluribus Africa Center, index of confidence was 90% and a sample margin of error of 6.8%.

Results: The results of the study showed that of the 100 patients followed, 55% (55/100) acquired new pathologies, including HIV 28% (15/55), lupus erythematosus 25% (14/55), Diabetes 18% (10/55), Tuberculosis 11% (6/55), Hepatitis C 9% (5/55), Hepatitis B 5% (3/55) and Osteoporosis 4% (2/55). The incidence of new pathologies in illiterate was 94% (16/17), with pre-school level 41% (11/27), with elementary school 11/26 (42%), with medium level 44% (8/18) and university level 75% (9/12). New pathologies in autonomous was 57% (27/47), in unemployed was 47% (17/36), in employees was 65% (11/17). The incidence of new pathologies was 42% (18/43) in patients with arterial hypertension, in malaria 59% (16/27), in diabetes mellitus it was 76% (19/25), in other diseases it was 40% (2/5). New pathologies in patients on hemodialysis for less than 6 years was 48% (39/81), in treatment between 6 and 10 years was 75% (9/12), in treatment between 11 and 15 years was 100% (7/7).

Conclusions: These factors can contribute to the reduction of life expectancy of hemodialysis patients and therefore it is necessary to carry out more studies on the factors that are associated with this, to allow the creation of more effective health policies to reduce the suffering of these patients.

Introduction

Kidney disease is a global public health problem, affecting more than 750 million people worldwide, its impact varies substantially around the world depending on its detection and treatment [1,2]. Although the magnitude and impact of kidney disease are better defined in developed countries, clinical evidence suggests that in developing countries like Angola, the impact may be greater [3].

Currently, the definition that Chronic Renal Failure (CRF) is based on changes in the glomerular filtration rate and/or the presence of parenchymal lesion maintained for at least three months is widely accepted [4]. In normal individuals, the glomerular filtration is in the range of 110 to 120 ml/min, in patients with CRF the filtration is reduced to between 10 and 5 ml/min and in this condition dialysis or kidney transplantation is necessary [4,5]. The biochemical consequence of this reduction in glumerular function translates into the retention in the body of a large number of toxic solutes, usually derived from metabolism, which can be indirectly assessed by means of plasma urea and creatinine levels, which are progressively increased [5].

The availability of data that reflects the global impact of kidney disease varies due to limited or inconsistent disease data surveillance practices, particularly in terminal kidney disease and non-dialysis chronic kidney disease, being even more worrying in low-income countries. Income [6-8]. The population impact of kidney disease has been linked to socially defined factors in most societies worldwide, in high-income countries for example, minority racial/ ethnic groups and people of low socioeconomic status (African-Americans in the United States, Aboriginal groups in Canada and Australia, Indo-Asians in the UK and other countries) suffer more disproportionately from the impacts of advanced and progressive kidney disease [9-12].

Due to the high number of new pathologies in patients with chronic kidney disease undergoing hemodialysis treatment, it was felt the need to study the common sociodemographic characteristics of these patients in order to produce knowledge for the implementation of clinical, political and social medicine to reduce the appearance of new pathologies in this group of patients which has an influence on the reduction of the patients' life experience.

Methodology

Patient recruitment

It was conducted as a descriptive, cross-sectional and quantitative approach. The studied population consisted of 100 patients undergoing hemodialysis at the Hemodialysis Pluribus Africa Center and who met the selection criteria, the sample was collected by simple random probability, among a population of 312 patients who are treated at this hospital, where the index of confidence was 90% and a sample margin of error of 6.8%. The study was approved by the research ethics committee involving human beings of the Higher Institute of Health Sciences (letter nº 227 / GD / ISCISA / UAN / 2016) and approved by the director of the Hemodialysis Pluribus Africa Center at Hospital Americo Boa Vida in Luanda. Patients under 15 years of age, patients with a history of other diseases before hemodialysis treatment, patients who were unable to provide information or give their informed consent were also excluded from the study.

Diagnosis of new pathologies

The diagnosis of new pathologies was carried out by doctors who treated these patients and were described in the patients' files, only patients who did not present other diseases before being submitted to hemodialysis were included in the study. In addition to the data described in the dossiers, patients were also asked whether they knew of the emergence of a new pathology after the start of hemodilitic treatment. All patients who agreed to participate in the study had to sign the informed consent form after being informed about the nature and objectives of the study. The collection of information from the socio-demographic data was made through a questionnaire of open and closed questions asked to the patient and filled out by the researchers; the clinical data of new pathologies were made through the consultation in the patients' files.

Statistical analysis

Descriptive statistics were calculated using the statistical program SPSS v20.0 (IBM SPSS Statistics, USA) and the results presented in graphs developed in Sigmaplot 12.0 (Systat Software, Inc.).

Results

Although the study was carried out in a hemodialysis center in the province of Luanda (dad not shown), it was found that the 100 patients studied were from almost all provinces in the country with the exception of Bie province (supplementary material table 1), the patients studied were from Benguela (21), Malange (14), Luanda (13), Cuanza Sul (9), Bie (7), Huila (6), Cabinda, Huambo, Cuanza Norte, Lunda Norte (each with 4 patients), Uige (3), Zaire, Namibe, Moxico, Cuando Cubango, Lunda Sul (each with 2 patients) and Cunene (1). The results of the study showed that of the 100 patients followed in the study, most patients 55% (55/100) after undergoing hemodialysis acquired new pathologies, including HIV 28% (15/55), Lupus erythematosus 25% (14/55), Diabetes 18% (10/55), Tuberculosis 11% (6/55), Hepatitis C 9% (5/55), Hepatitis B 5% (3/55) and Osteoporosis 4% (2/55).

Regarding the level of education (Figure 1), it was found that among the patients studied (100), the illiterate patients (17) had an average age of 49 years and the female/male ratio was 9/8 and 16/17 (94%) acquire new pathology, those of patients with pre-school level of education (27) had an average age of 36 years and the female/male ratio was 14/13 and 11/27 (41%) acquire a new pathology. Patients with elementary schooling (26) had an average age of 44 years and the female/male ratio was 6/20 and 11/26 (42%) acquired a new pathology, patients with a medium level of education (18) had an average age of 33 years and the female/male ratio was 11/7 and 8/18 (44%) acquired a new pathology. University-level patients (12) had an average age of 34 years and the female/male ratio was 6/6 and 9/12 (75%) acquired a new pathology. Of the 55 patients who acquired new pathologies, most were illiterate, representing about 29% (16/55), having been infected mainly by HIV (6), Diabetes (5) and Lupus erythematosus (5). Patients with pre-school level represented about 20% (11/55) of the population with new pathologies, mainly infected by Diabetes (4) and HIV (4). Patients with elementary schooling also represented about 20% (11/55) of the population with new pathologies, mainly affected by Lupus erythematosus (4), HIV (2) and Hepatitis C (2). Patients with superior accounted for about 16% (9/55) of patients with

new pathologies, affected mainly by Lupus erythematosus (8). Patients with a medium level of education represented about 15% (8/55) of patients with new pathologies, mainly infected by Hepatitis C (3), Hepatitis B (2) and HIV (2).
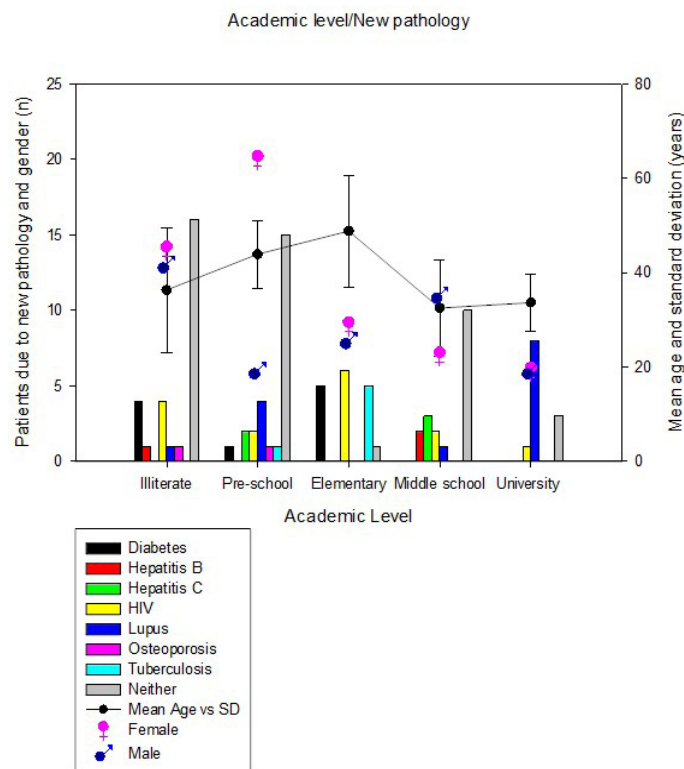
Figure 1: New pathologies and academic level of patients.

Illiterate: patients who reported that they never attended school and do not know how to read or write. *Pre-school:* patients who reported that they study or studied between the first to the sixth year of primary education. *Elementary:* patients who reported studying or studied between the seventh to the ninth grade of elementary school. *Middle School:* patients who reported that they study or studied between the ninth to the thirteenth year of high school. *University:* patients who study or have studied between the 1st to the last year of university education.

Among the 100 patients studied, it was found that the singles were the majority (60) with an average age of 35 years and the female/male ratio of 30/30 and 30/60 (50%) presented new pathologies, followed by widowed patients (24) with an average age of 49 years and the female/male ratio of 16/8 and 15/24 (62%) presented new pathologies, married patients (16) were on average 40 years old and the female/male ratio was 10/6 and 6/16 (38%) presented new pathology. It was found that of the 55 patients who acquire new pathologies (Figure 2), the singles were the majority representing about 55% (30/55), infected mainly with HIV (8), Lupus erythematosus (7), diabetes and tuberculosis (with 4 cases each). Widowed patients represented the second group of patients with new pathologies, representing about 27% (15/55), mainly infected with Diabetes (5) and HIV (4). Married patients accounted for about 18% (10/55) of patients with new pathologies, mainly infected with Lupus erythematosus (3) and HIV (5).
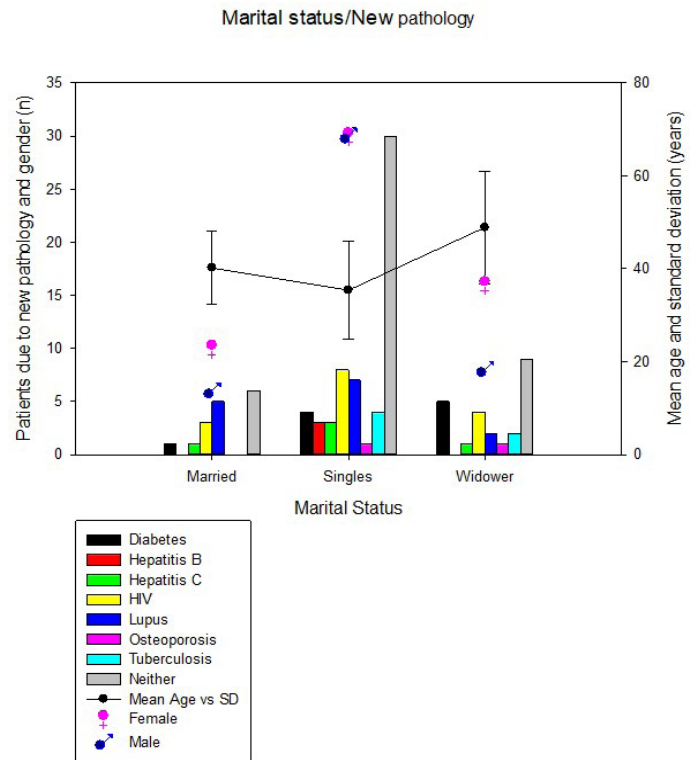
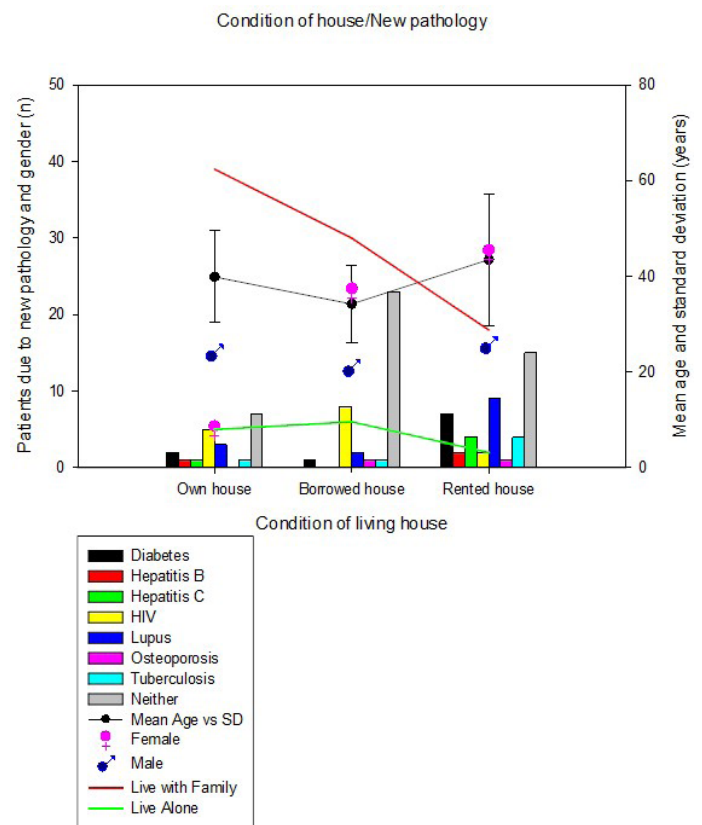**Figure 2:** New pathologies and relation to patients' marital status.

Married: patients who stated that they were married or lived with their partners by sharing facts. *Singles:* patients who said they did not live with their partners even though they had a girlfriend, brides or other types of relationship more than they did not live with their partner. *Widower:* patients who reported being married or living in a stable union more than their partners died.

As for patient occupation, it was found that of the 100 patients studied, the majority (47) were self-employed patients with an average age of 39 years and the female/male ratio of 26/21 and 27/47 (57%) acquire new pathology, followed by unemployed patients (36) with an average age of 39 years and the female/male ratio of 21/15 and 17/36 (47%) acquire a new pathology, patients with employment in a company were the minority (16) with an average age of 39 years and the female/male ratio of 9/8 and 11/17 (65%) acquired a new pathology. The results showed (Figure 3) that of the patients with new pathologies (55/100), the majority of the patients studied, to earn an income, worked for themselves, representing 49% (27/55) of the patients with new pathologies, mainly affected by diabetes (8), Lupus erythematosus (7) and HIV (5). Unemployed and uninsured patients accounted for approximately 31% (17/55) of patients with new pathology, mainly infected with Lupus erythematosus (6), diabetes (5) and tuberculosis (3). Patients who had guaranteed income from a job in a company represented 20% (11/55) of patients with new cases of pathologies, mainly affected by HIV (5), Hepatitis C (3) and Tuberculosis (2).
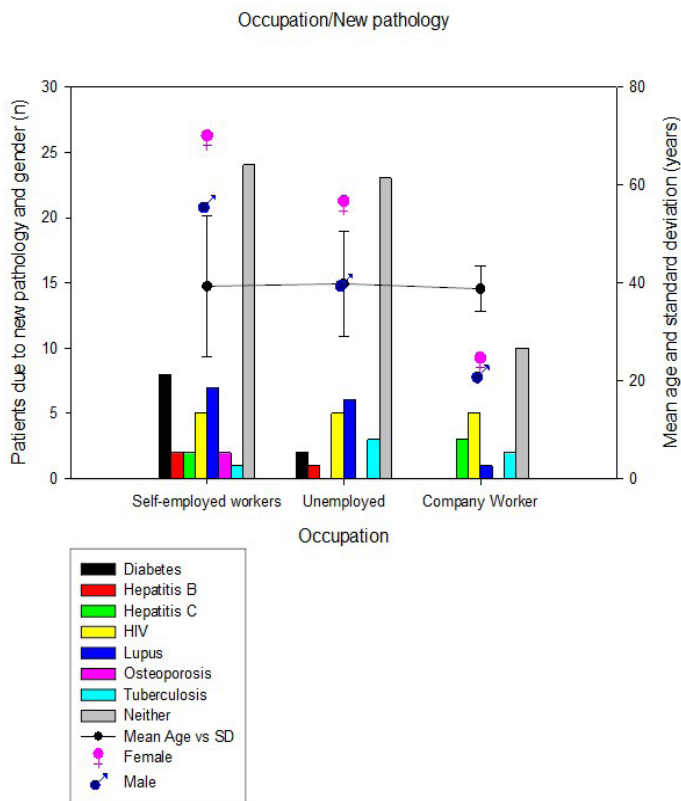
Figure 3: New pathologies and patient occupation.

Self-employed workers: patients who reported that they did not have a job, but that their source of income depends on jobs that they developed on their own account in favor of companies or individuals. *Unemployed:* patients who reported that they had no way of earning an income, neither for jobs and business for their own account nor for working in companies. *Company workers:* patients who mentioned their source of income as employees of public or private companies.

We tried to verify the condition of the residences (Figure 4) in which the patients lived and we realized that the majority lived in rented houses (44) with an average age of 44 years old and the female/male ratio of 28/16 and 29/44 (66%) acquire new pathology of which 39 patients lived with their families and 5 lived alone. A large number of patients lived in borrowed house (36) with an average age of 34 years old and the female/male ratio of 23/13 and 13/36 (36%) acquire a new pathology of which 30 patients lived with their families and 6 lived alone. Patients with their own residence (20) had an average age of 40 years and the female/male ratio was 5/15 and 13/20 (65%) acquired a new pathology of which 18 patients lived with their families and 2 lived alone. The study showed that among patients with new pathologies, a large number came from other provinces and therefore live in homes renting 52% (29/55), of which the majority were affected by Lupus erythematosus (9), diabetes (7), Hepatitis C and Tuberculosis (4 patients each pathology). The group of patients who lived at home provided by a relative, about 24% (13/55) of patients with new pathologies, being affected mainly due to HIV (8) and Lupus erythematosus (2). Only a percentage of about 24% (13/55) had their own residence, mainly infected with HIV (5), Lupus erythematosus (3) and diabetes (2).


Figure 4: New pathologies and residences in which patients live.

Own house: patients who claimed to live in their own home, that is, a fully settled home. *Borrowed house:* patients who stated that they lived in family homes jointly or individually, but that they did not pay anything for it. Rented house: patients who reported that they resided in rented residences, regardless of whether they are state social residences or private residences.
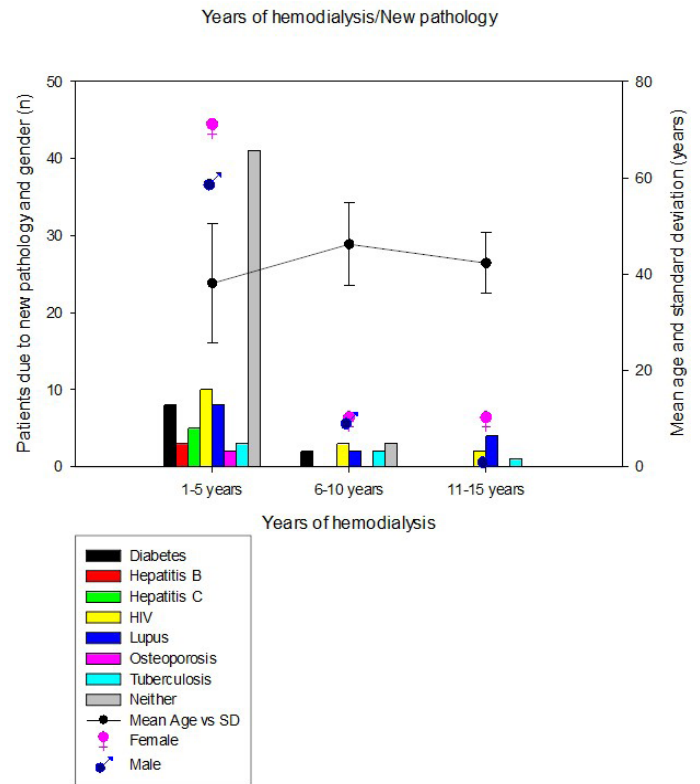
When asked what was the underlying disease that led patients to chronic renal failure and hemodialysis treatment, most patients (43) stated that they suffered from arterial hypertension with an average age of 46 years, where the female/male was 21/22 and 18/43 (42%) acquire new pathology, followed by patients who stated that after being affected by malaria (27), they developed chronic renal failure with an average age of 26 years old and with a female/male ratio of 17/10 and 16/27 (59%) acquire new pathology, a group of patients (25) reported that they had diabetes mellitus before developing chronic renal failure and had an average age of 44 years with a female/male ratio of 11/14 and 19/25 (76%) acquire new pathology, only a small group (5) stated that they suffered from other diseases (polycystic kidney, sickle cell anemia and other diseases) where the average age was 35 years old and the female/male ratio was 4/1 and 2/5 (40%) acquired a new pathology. Among patients (Figure 5) who had new pathologies (55), about 34% (19/55) had diabetes as the underlying disease and were mainly affected by Lupus erythematosus (9), HIV (9) and tuberculosis (2). Patients with arterial hypertension with underlying disease accounted for approximately 33% (18/55) of patients with new pathologies, mainly affected by diabetes (10), hepatitis C (3), HIV and Tuberculosis (2 patients for each pathology). Patients with malaria as the underlying disease accounted for about 29% (16/55) with new pathologies, mainly infected with HIV (5), Lupus erythematosus (5), Hepatitis C (3) and Hepatitis (2). Patients with other underlying diseases, represented only 11% (2/55) of patients with new pathologies, mainly infected with HIV (1) and Tuberculosis (1).

erythematosus and Tuberculosis (2 patients for each one) pathologies). The group of patients with whom he underwent hemodialysis between 5 to 10 years, represented about 16% (9/55) of the patients with new pathologies, mainly infected by HIV (3), Diabetes, Lupus erythematosus and Tuberculosis (2 patients for each one) pathologies).
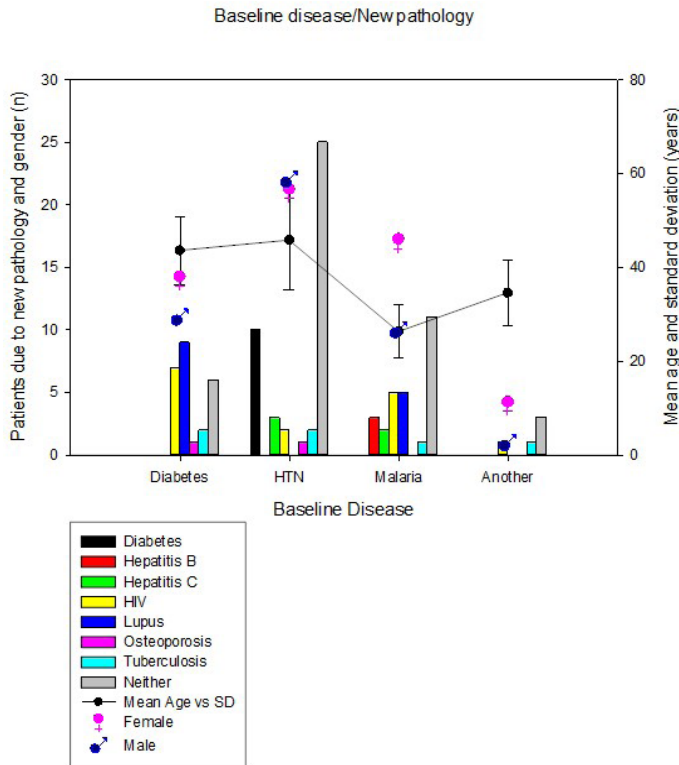
Figure 5: New pathologies and underlying diseases of patients.

Diabetes: patients who reported that before they developed Chronic Renal Insufficiency and new pathologies after being submitted to hemodialysis, they suffered from diabetes. HTN: patients who reported that before being diagnosed with Chronic Renal Insufficiency and developing new pathologies, they had arterial hypertension. Malaria: patients who reported that they did not have any other underlying disease and that before developing chronic renal failure they had been hospitalized for malaria. Another diseases: Patients who reported that they suffered from other diseases such as polycystic kidney, sickle cell anemia or another disease that does not go up to say exactly).

When asked how long they were on hemodialysis, it was found that patients on hemodialysis for less than 6 years (81) had an average age of 38 years and in this group of patients the female/male ratio was 44/37 and 39/81 (48%) acquire a new pathology, patients who were on treatment between 6 and 10 years old (12) were 46 years old and in this group of patients the female/male ratio was 6/6 and 9/12 (75%) acquire a new pathology, among patients who were on hemodialysis treatment between 11 and 15 years old (7) had an average age of 42 years and the female/male ratio in this group of patients was 6/1 and 7/7 (100%) acquire a new pathology. Among patients with new pathologies (55), it was found that the majority were patients who underwent hemodialysis (Figure 6) less than 5 years ago, representing about 72% (40/55) of patients with new pathologies, infected mainly by HIV (10), Lupus erythematosus and diabetes (8 patients for each pathology), Hepatitis C (5), Hepatitis B and Tuberculosis (8 patients for each pathology). The group of patients with whom he underwent hemodialysis between 5 to 10 years, represented about 16% (9/55) of the patients with new pathologies, mainly infected by HIV (3), Diabetes, Lupus

Figure 6: New pathology and hemodialysis treatment time.

1 to 5 years: patients who reported having been on hemodialysis treatment for more than 1 year and less than 6 years. 6 to 10 years: patients who report that they are undergoing hemodialysis in a period that goes between 6 to 10 years. 11 to 15 years: patients who referred are treated by hemodialysis in a period that goes between 11 to 15 years.

Discussion

In the present study, patients regardless of academic degree, the appearance of new pathologies in all groups of patients aggregated by academic degree was greater than 40%, where patients with university degrees and illiterates had rates of 75% and 97%, respectively, in Angola, the low academic level can significantly influence the health situation of the population, as less educated people tend to be less informed about the health process and are those who most seek public health services, usually later and when the disease has little chance of treatment, although in this study this factor did not seem to have much impact. In the study carried out in Greece, regarding the level of education, 30% of patients completed pre-school education, 25% elementary education, 22% high school, 23% had a university level, where 1% of them already had completed a doctorate and another 1% a master's degree [13]. Another study developed in Iran to evaluate the experiences of patients on hemodialysis with the concept of care, found that illiterates represented 23.5%, with primary education represented 53% and with higher education represented 23.5% of the studied

population [15]. A study carried out in Ethiopia, to assess self-management and associated factors in patients with end-stage renal disease undergoing hemodialysis, found that 11 patients did not know how to write or read, 10 patients could read and write but did not finish pre-school education, 24 had concluded primary education and had a secondary level, 16 had a medium level of education and 85 had a university level [16].

In this study, it was found that singles represented 50%, where 50% of them had new pathologies, widowed, represented 24%, where 68% of them had new pathologies and married couples represented 16%, where 38% of them had new pathologies and women were the majority in relation to men (56/44) with an average age of 39 years old (Figure 2 and supplementary materials table 2), we realized that single people and widows had less support and family support and that single people because they were younger, believed that their life did not make more sense and that in some cases they presented risky behaviors (such as sexual involvement without a condom, lack of food care), hygiene care and others). Different from the study carried out in Greece, which evaluated the social condition of hemodialysis patients , found that of the 100 patients followed, the majority were male (69%) compared to female (31%), 69% were between 50 and 59 years old, 66% were married, 14% were single, 8% were divorced and 12% were widowed [13]. The study carried out in India to assess the economic status of patients with end-stage renal disease undergoing hemodialysis, where the majority of patients were in the age group 51 to 60 years old, with an average age of 49.72 ± 13.2 and 22 were male and 8 female [14]. A study developed in Ethiopia, showed that the average age of the participants was 49.8 ± 15.58 years, the majority between 40 and 59 years (n = 64, 37.9%), male (n = 118, 69, 8%) and married (n = 111, 65.7%) and had a diploma and above schooling (n = 85, 50.3%) [16].

In the present study it was found that people with self-employment and unemployed patients were the majority, representing 47% and 36%, respectively (Figure 3) we realized that the job opportunities in this group of patients were very low regardless of their technical and academic skills, most of the patients who still had a job were patients who already worked in public companies mainly before the diagnosis of CRF, so their companies kept them working with some restrictions. This result differs from the study carried out in Greece, in which in relation to professional status, it was found that 6% of patients had full employment, 3% had part-time employment, 10% were unemployed and 80% were retired[13]. The situation of joblessness was probably associated with the fact that the majority of patients were unable to acquire a residence in Luanda (Figure 4), since most of the patients stated that they lived in rented residences (44%) and were transferred by family members (36%) and 13% lived alone. A fact found in the study in Greece where as for the time that patients spend with family and friends, most respondents (32.7% n = 32) reported a lot of satisfaction with the time they spend with the family, when asked if they were feeling a burden for the family (68,3% n = 67) absolutely agreed that they were feeling a burden on the family because of nephropathy [13].

When questioned about the underlying disease before undergoing hemodialysis, it was found that hypertension and diabetes were the underlying diseases that most contributed to chronic renal failure in patients, representing about 43% and 25% of respectively, but malaria contributed more than diabetes, being responsible for about 27% of CRF cases in patients,

especially in younger patients (Figure 5). This fact is not new because a study developed by our research team in Luanda, to assess whether the level of parasitemia increases the risk of acute kidney injury in patients with malaria, found that patients with high parasitemia had different levels of kidney injury, 46% (5/11) AKI1, 9% (1/11) AKI2, 18% (2/11) AKI3 and 27% (3/11) AKD and patients with hyperparasitemia had 59% (10/17) AKI1, 12% (2/17) AKI3 and 29% (5/17) AKD [17]. Corroborating the study of ocular findings in patients with Chronic Renal Insufficiency, stated that the disease could result from Diabetes, Hypertension, Renal diseases (polycystic kidney, pyelonephritis or glomerulonephritis, kidney stones, renal artery stenosis and tumors), Certain toxins (solvents such as carbon tetrachloride and lead, lead-based paints, tubes and soldering materials, some types of jewelry), systemic lupus erythematosus, malaria and yellow fever, Wegener's granulomatosis, excessive use of drugs (NSAIDs, such as aspirin and brufe and others) [18]. A study developed in Ethiopia, to evaluate self-management and associated factors in patients with end-stage renal disease undergoing hemodialysis when evaluating complications of hemodialysis time, found that 63% cited hypertension, 47% cited diabetes, 82% cited anemia, 75% cited charitable complications, 60% cited osteodystrophagy [13].

When evaluating the time of hemodialysis in relation to the new pathology, it was found that the majority of patients underwent hemodialysis in less than 6 years, representing about 80% of patients, however, the measure that increased the time of hemodialysis also increased the chance to acquire a new pathology (Figure 6) and the pathologies affected about 55/100 (55%) of the studied patients, with emphasis on HIV (15%), Lupus erythematosus (14%), Diabetes (10%), Tuberculosis (6%), Hepatitis C (5%), Hepatitis B (3%) and Osteoporosis (2%). A study developed in Ethiopia, to evaluate self-management and associated factors in patients with end-stage renal disease undergoing hemodialysis when evaluating complications of hemodialysis time, found that 63% cited hypertension, 47% cited diabetes, 82% cited anemia, 75% cited charitable complications, 60% cited osteodystrophagy [16]. In the study carried out in India, there were also comorbidities in 30 patients with chronic renal failure who underwent hemodialysis, where they found that the most common were hypotension (12), muscle cramps (9), anemia (11), infectious diseases (6), Nausea (4), itching (6), dyspnoea (3), vomiting (8) [14].

Conclusion

The study showed the emergence of new pathologies in patients with Chronic Renal Insufficiency is a worrying fact, many of them may be due to the clinical condition and treatment (such as Lupus erythematosus, diabetes, osteoporosis), but others may be associated with behaviors and conditions of patients (such as HIV, Tuberculosis, hepatitis B and C), it was also found that unlike other studies, malaria appears as the second disease that triggered chronic renal failure, mainly affecting a slightly younger population with a age was less than 30 years, these factors can contribute to the reduction of life expectancy of hemodialysis patients and therefore it is necessary to carry out more studies on the factors that are associated with this, to allow the creation of more effective health policies to reduce the suffering of these patients.

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