ISSN: 2230-9926

*Available online at http://www.journalijdr.com*

IJDR

*International Journal of Development Research*
*Vol. 09, Issue, 02, pp.25625-25632, February, 2019*

ORIGINAL RESEARCH ARTICLE OPEN ACCESS

# NURSING DIAGNOSISANDCLINICAL COMPLICATIONS IN HOSPITALIZED PATIENTS WITH CHRONIC KIDNEY DISEASE

**[1]Ana Paula Malagoli Ribeiro, [2]Patrícia Costa dos Santos da Silva, [2]Clesnan Mendes-Rodrigues, [2]Lívia Ferreira Oliveira, [2]Omar Pereira de Almeida Neto and [2,*]Suely Amorim de Araújo**

[1]Academic of the Undergraduate Nursing Course, Medicine Faculty, Federal University of Uberlândia, Nursing, Uberlândia, Brazil
[2]Ph.D., Professor, Federal University of Uberlândia, Medicine Faculty, Nursing, Uberlândia, Brazil

**ARTICLE INFO**

***Article History:***
Received 18th November, 2018
Received in revised form
29th December, 2018
Accepted 06th January, 2019
Published online 27th February, 2019

***Key Words:***
*Chronic renalin sufficiency; Complications; Nursing diagnosis; Nursing; Infection; Hypertension.*

**ABSTRACT**

**Objective**: To evaluate the complications and main nursing diagnoses in patients with chronic kidney disease (CKD). **Method**: This is a quantitative and retrospective study with 73 medical records of patients with a medical diagnosis of chronic kidney disease. A structured script was used for data collection. Categorical variables were presented as absolute and relative frequency and numerical variables were presented as minimum, maximum, mean and standard error, and quartiles. For the analysis of nursing diagnoses, those with a frequency equal or greater than 50% were included. **Results**: The following complications were found: infection (60.27%); hydroelectrolytic imbalance (49.32%); arrhythmias (36.99%); anemia (35.62%); heart failure (34.25%) and bleeding (20.55%). Regarding the five main nursing diagnoses, there is the risk of infection, the risk of vascular trauma, the deficit in self-care for the bath, the risk of injury and the risk of unstable capillary glycemia. **Conclusion**: the infection and the risk for infection were the main complications and the main nursing diagnoses, respectively. It is important to highlight the practical implications of the results obtained in the planning of nursing interventions, which directs care to the actual or potential needs of these patients and also contributes to the scientific advances in the nursing process.



**Citation: Ana Paula Malagoli Ribeiro, Patrícia Costa dos Santos da Silva, Clesnan Mendes-Rodrigues, Lívia Ferreira Oliveira, Omar Pereira de Almeida Neto and Suely Amorim de Araújo. 2019.** "Nursing diagnosisandclinical complications in hospitalized patients with chronic kidney disease", *International Journal of Development Research*, 9, (02), 25625-25632.

## INTRODUCTION

Chronic kidney disease (CKD) is considered a serious public health problem worldwide in recent years (Rehman *et al*., 2017), with high rates of morbidity and mortality, which affects approximately 13% of the adult population and generates social and economic problems (KDIGO, 2013) and and strong impact on quality of life (Jesus *et al*., in press). Also, scientific research show that the CKD is no longer a dilemma only for health services, due to the costs and demands, and it has become the object of study with the aim of improving healthcare (Santos *et al*., 2017). In this scenario, the Brazilian academic environment becomes an important actor with the mission of fostering research aimed at the needs of this growing segment of the Brazilian population composed of people with CKD, to provide tools for improving healthcare. In this sense, the nursing team as responsible for the integral care of the human being in different conditions and levels of healthcare needs tools to improve the quality of nursing care. Thus, it was sought to identify the main complications, associated comorbidities and nursing diagnosis presented by patients with CKD to provide scientific evidence for the improvement of care provided to these people.

### Objective

To evaluate the clinical complications and the main nursing diagnosis in hospitalized patients with CKD.

***Corresponding author:*** **Suely Amorim de Araújo**
Ph.D. Adjunct Professor, Federal University of Uberlândia, Undergraduate Nursing Course, Uberlândia, MG – Brazil.

## MATERIALS AND METHODS

This is a retrospective and documental study carried out with a quantitative approach, in which records of patients with ICD N-18, chronic kidney disease developed in Clinical Hospital of Uberlândia "Hospital de Clínicas de Uberlândia", a public and university hospital, located in the Triângulo Mineiro region of Minas Gerais state, Brazil.Data collection in the medical records was carried out from August to September 2017, using a semi-structured script, containing information on sociodemographic data, hospitalization sector, number of days of hospitalization, medical diagnosis, anthropometric data, nursing diagnosis and their frequency, outcome of discharge or death in the unit. There were 82 medical records of patients who had ICD-18 and who were hospitalized in the from 2016 to July 2017 selected in the Intensive Care Units (Adult ICU), Cardiac Intensive Care Unit (CICU) and Surgical Clinic 2 (SC2), and only 73 were included, since they met the inclusion and exclusion criteria. The inclusion criteria were records of ICD-18 patients and medical records of patients older than 18 years old, and the exclusion criteria were those patients who did not present the nursing diagnosis.

The international norms of experimentation with humans were adopted and those established by the Brazilian National Health Council for this study. The study was approved by the Research Ethics Committee of the Federal University of Uberlândia (UFU), under Protocol 1,881,208 and CAAE number: 59568916.3.0000.5152. The categorical variables were presented as absolute and relative frequency and the numerical variables as minimum, maximum, mean and standard error, and quartiles (Q1, Q2, and Q3) were presented. The Statistical Package for Social Sciences version 20.0 (SPSS), Bio Estat 5.3 and FITOPAC 2.1 (Shepherd 2010) were used to analyze the nursing diagnosis. Nursing diagnosis with a frequency equal or greater than 50% in patients were included in the study. The profile difference between the units was tested with a G test with Williams correction. To evaluate the care profile of the units, excluding patients who were hospitalized in more than one unit, a Principal Component Analysis was also performed. In this case, two separate analyzes were performed. In the first phase, all the nursing diagnosis presented by the patients were considered, and in the second phase, only the 23 most prevalent diagnosis by the patients were considered.

## RESULTS

The study sample was composed of 81 medical records, and only 73 of them were included in the study, being possible to note the presence of a greater number of medical records of males (69.86%, n=51); with a partner (69.86%, n=51); living in Uberlândia (57.53%, n=42); white self-reportedskin race (54.93%, n=39) and hospitalized in the Adult ICU (47.95%, n=35), as shown in Table 1.The prevalent comorbidity, systemic arterial hypertension (SAH) was detected, with 82.19% of patients affected. Then, the heart diseases were highlighted with 56.16% of the cases; diabetes mellitus (DM) with 35.62%; cancer and hypothyroidism with 15.07% each and obesity and dyslipidemia with 13.7% each (Table 1).A mean age of 67.6 years old was identified, ranging from 26 to 92 years old. The mean weight found was 72.52 Kg, mean height of 1.67 meters and body mass index (BMI) with a mean of 25.69 Kg/m$^2$. Seventeen patients were excluded from the BMI assessment because the height was not recorded. It is noteworthy that 35.62% of the patients had smoking a risk factor and 21.92% had alcoholism (Table 1).In the records studied (n=73), 38 of the patients died. Most deaths occurred in the Adult ICU sector with 44.74% (17) of the patients; in other sectors, with 28.95% (11); CICU with 21.05% (8) and SC2 (2). The mean hospitalization time in the sector was 12.67 days and mean hospital stay was 33.04 days. In the evaluated population, patients who underwent hemodialysis predominated 67.12% (49), as shown in Table 2.

The main complications in the chronic kidney patients were infection in 60.27% of the cases; the hydroelectrolytic imbalance was in 49.32%; arrhythmias in 36.99%; anemia in 35.62%; heart failure in 34.25% and bleeding in 20.55% (Table 2).There were 96 different types of nursing diagnosis found, of which 23 were selected and studied in more detail, present in more than 50% of the patients. The risk of infection was found to be prevalent in 87.67% of the patients and also to a greater number of patient-day (572), with prevalence in the CICU sector; the risk of vascular trauma was identified in 83.56% of the patients in 526 patient-day, with prevalence in Clinical Surgery 2; self-care deficit for bath 82.19% of patients, present in 505 patient-day and with prevalence in the Adult ICU sector; risk of injury 79.45% of the patients, present in 462 patient-day and with prevalence in the Adult ICU sector; risk of unstable capillary glycemia 76.71% of patients, present in 404 patient-day and prevalent in the CICU sector (Table 3).Table 4 shows the distribution of nursing diagnosis according to their domain and their class, established in the nomenclature of the North American Nursing Diagnosis Association (NANDA) 2015-2017. The spacing and opposite directions of the indicators in Figure 1 show that the profile of nursing diagnosis differed between the three sectors: Adult ICU, CICU, and SC2. If the profiles were similar, the indicators would be superimposed on each other. The sectors presented different diagnostic profiles (G=64.76; P=0.224) when evaluating the 23 most prevalent diagnosis. The nursing diagnosis found in patients with chronic kidney disease and ordered by the relative frequency according to the number of patients evaluated were Risk of infection, n = 64 (87.67%); Risk of vascular trauma, n = 61 (83.56%); Deficit in selfcare for bathing, n = 60 (82.19%); Risk of injury, n = 58 (79.45%); Impaired urinary elimination, n = 56 (76.71%); Risk of impaired skin integrity, n = 56 (76.71%); Risk of unstable glycemia, n = 56 (76.71%); urinary retention, n = 53 (72.6%); Ineffective breathing pattern, n = 52 (71.23%); Impaired spontaneous ventilation, n = 52 (71.23%); Unbalanced nutrition: Less than body needs, n = 51 (69.86%); Deficient in fluid volume, n = 51 (69.86%); Decreased cardiac output, n = 50 (68.49%); Excessive fluid volume, n = 49 (67.12%); Risk of trauma, n = 49 (67.12%); Risk of shock, n = 48 (65.75%); Ineffective airway clearance, n = 46 (63.01%); Risk of falls, n = 41 (56.16%); Deficit in selfcare for feeding, n = 40 (54.79%); Ineffective protection, n = 39 (53.42%); Risk of ineffective cerebral tissue perfusion, n = 39 (53.42%); Impaired swallowing, n = 37 (50.68%); Risk of bleeding, n = 37 (50.68%); Impaired gas exchange, n = 35 (47.95%); Impaired tissue integrity, n = 35 (47.95%); Delayed surgical recovery, n = 35 (47.95%); Risk of ineffective renal perfusion, n = 35 (47.95%); Dysfunctional response to ventilatory weaning, n = 33 (45.21%); Risk of ineffective gastrointestinal perfusion, n = 31 (42.47%); Risk of imbalance in body temperature, n = 29 (39.73%); Risk of dysfunctional gastrointestinal motility, n = 29 (39.73%); Risk of decreased

**Table 1. Baseline from patients with chronic renal disease hospitalized in a public and university hospital (n=73). Uberlândia, Brazil, 2017**

| Factor | Stratum | % (n) | Stratum | % (n) |
|---|---|---|---|---|
| Gender | Male | 69.86 (51) | Female | 30.14 (22) |
| Partner living together | Absent | 30.14 (22) | Present | 69.86 (51) |
| City of origin | Uberlândia | 57.53 (42) | Others | 42.47 (31) |
| Self-reported Race | White | 54.93 (39) | Black | 40.85 (29) |
| Hospitalization Sector | AD ICU | 47.95 (35) | AD ICU + CICU | 1.37 (1) |
| | CICU | 30.14 (22) | AD ICU + SC2 | 8.22 (6) |
| | SC 2 | 12.33 (9) | | |
| Systemic Arterial Hypertension | No | 17.81 (13) | Yes | 82.19 (60) |
| Diabetes Mellitus | No | 64.38 (47) | Yes | 35.62 (26) |
| Obesity | No | 86.3 (63) | Yes | 13.7 (10) |
| Dyslipidemia | No | 86.3 (63) | Yes | 13.7 (10) |
| Alcoholism | No | 78.08 (57) | Yes | 21.92 (16) |
| Cardiopathy | No | 43.84 (32) | Yes | 56.16 (41) |
| Hypothyroidism | No | 84.93 (62) | Yes | 15.07 (11) |
| Smoking | No | 64.38 (47) | Yes | 35.62 (26) |
| Factor (unit) | Average ± SE | Min - Max | Q1 - Q2 (Median) - Q3 | N |
| Age (year) | 67.6 ± 1.46 | 26 - 92 | 62 - 68.5 - 75.25 | 73 |
| Weight (Kg) | 72.52 ± 1.62 | 42 - 140 | 65 - 70 - 80 | 73 |
| Height (m) | 1.67 ± 0.01 | 1.45 - 1.8 | 1.63 - 1.67 - 1.73 | 56 |
| Body mass index (Kg/m$^2$) | 25.69 ± 0.62 | 16.7 - 43.2 | 23.29 - 25.2 - 27.25 | 56 |

Legend: SE: standard error, Min: Minimum, Max: Maximum, AD ICU: Adult IntensiveCare Unit; CICU: Cardiac Intensive Care Unit; SC2: Surgical Clinic2. Q1,Q2,Q3: Quartis 1, 2 and 3, respectively.

**Table 2. Clinical complications, death, hospitalization time and number of nursing diagnosis presented of patients with Chronic Kidney Disease in a public and university hospital (n=73). Uberlândia, Brazil, 2017**

| Factor | Stratum | % (n) | Stratum | % (n) |
|---|---|---|---|---|
| Unit where death occurs | AD ICU | 44.74 (17) | SC 2 | 5.26 (2) |
| | CICU | 21.05 (8) | Other | 28.95 (11) |
| Death during hospitalization | No | 47.95 (35) | Yes | 52.05 (38) |
| Hemodialysis | No | 32.88 (24) | Yes | 67.12 (49) |
| Infection | No | 39.73 (29) | Yes | 60.27 (44) |
| Anemia | No | 64.38 (47) | Yes | 35.62 (26) |
| Arrhythmia | No | 63.01 (46) | Yes | 36.99 (27) |
| Cardiac insufficiency | No | 65.75 (48) | Yes | 34.25 (25) |
| Bleeding | No | 79.45 (58) | Yes | 20.55 (15) |
| Hydroelectrolytic Imbalance | No | 50.68 (37) | Yes | 49.32 (36) |
| | Average ± SE | Min - Max | Q1 - Q2 (Median) - Q3 | N |
| Time of Sector Stay (day) | 12.67 ± 1.27 | 1 - 49 | 5 - 8.5 - 17 | 73 |
| Hospitalization days | 33.04 ± 3.55 | 1 - 179 | 14 - 26 - 40.25 | 73 |
| Number Nursing Diagnosis | 26.99 ± 1.52 | 1 - 56 | 18 - 28 - 36.25 | 73 |

Legend: AD ICU: Adult IntensiveCare Unit; CICU: Cardiac intensive care unit; SC2: Surgical Clinic 2, SE: standard error, Min: Minimum, Max: Maximum, Q1,Q2,Q3: Quartis 1, 2 and 3, respectively.

**Table 3. 23 main nursing diagnosis and their frequency in patients with Chronic Kidney Disease based patient, patient-day and patient to each unit from a public and university hospital (n=73). Uberlândia, Brazil, 2017**

| Diagnosis of nursing | n (p) | % | S | n(p-d) | % | Score | ADICU (n=35) | CICU (n=22) | SC2 (n=9) |
|---|---|---|---|---|---|---|---|---|---|
| Risk of infection | 64 | 87.67 | 1 | 572 | 4.54 | 1 | 85.71(30) | 95.45(21) | 66.67(6) |
| Risk of vascular trauma | 61 | 83.56 | 2 | 526 | 4.17 | 2 | 80(28) | 86.36(19) | 88.89(8) |
| Self-care deficit for bath | 60 | 82.19 | 3 | 505 | 4.00 | 3 | 91.43(32) | 86.36(19) | 22.22(2) |
| Risk of injury | 58 | 79.45 | 4 | 462 | 3.66 | 4 | 85.71(30) | 81.82(18) | 44.44(4) |
| Risk of unstable glycemia | 56 | 76.71 | 5 | 404 | 3.20 | 7 | 77.14(27) | 86.36(19) | 33.33(3) |
| Integrity risk of impaired skin | 56 | 76.71 | 6 | 436 | 3.46 | 6 | 88.57(31) | 72.73(16) | 22.22(2) |
| Impaired urinary output | 56 | 76.71 | 7 | 384 | 3.04 | 9 | 85.71(30) | 63.64(14) | 55.56(5) |
| Urinary retention | 53 | 72.60 | 8 | 316 | 2.51 | 15 | 82.86(29) | 59.09(13) | 44.44(4) |
| Impaired Spontaneous Ventilation | 52 | 71.23 | 9 | 294 | 2.33 | 19 | 82.86(29) | 68.18(15) | 44.44(4) |
| Ineffective respiratory pattern | 52 | 71.23 | 10 | 452 | 3.58 | 5 | 91.43(32) | 59.09(13) | 22.22(2) |
| Poor fluid volume | 51 | 69.86 | 11 | 264 | 2.09 | 22 | 91.43(32) | 59.09(13) | 0(0) |
| Unbalanced Nutrition: Less Than Body Needs | 51 | 69.86 | 12 | 326 | 2.58 | 14 | 80(28) | 72.73(16) | 11.11(1) |
| Decreased cardiac output | 50 | 68.49 | 13 | 312 | 2.47 | 17 | 71.43(25) | 77.27(17) | 22.22(2) |
| Risk of trauma | 49 | 67.12 | 14 | 394 | 3.12 | 8 | 77.14(27) | 54.55(12) | 33.33(3) |
| Excessive fluid volume | 49 | 67.12 | 15 | 384 | 3.04 | 10 | 88.57(31) | 54.55(12) | 0(0) |
| Shock risks | 48 | 65.75 | 16 | 351 | 2.78 | 12 | 71.43(25) | 77.27(17) | 0(0) |
| Ineffective airway clearance | 46 | 63.01 | 17 | 343 | 2.72 | 13 | 82.86(29) | 45.45(10) | 22.22(2) |
| Risk of falls | 41 | 56.16 | 18 | 255 | 2.02 | 23 | 45.71(16) | 77.27(17) | 44.44(4) |
| Self-care deficit for food | 40 | 54.79 | 19 | 368 | 2.92 | 11 | 77.14(27) | 27.27(6) | 22.22(2) |
| Risk of ineffective cerebral tissue perfusion | 39 | 53.42 | 20 | 270 | 2.14 | 21 | 62.86(22) | 50(11) | 0(0) |
| Ineffective protection | 39 | 53.42 | 21 | 287 | 2.28 | 20 | 68.57(24) | 22.73(5) | 44.44(4) |
| Risk of bleeding | 37 | 50.68 | 22 | 219 | 1.74 | 24 | 51.43(18) | 54.55(12) | 11.11(1) |
| Impaired swallowing | 37 | 50.68 | 23 | 315 | 2.50 | 16 | 77.14(27) | 13.64(3) | 11.11(1) |

Legend: S: Score; p: patient; p-d: patient-day; ADICU: Adult Intensive Care Unit; CICU: Cardiac Intensive Care Unit; SC2: Surgical Clinic 2.

**Table 4. Nursing diagnosisin patients with Chronic Kidney Disease hospitalized in a public and university hospital stratified for domain and class according to NANDA (2015-2017). Uberlândia (MG), Brazil, 2017**

| Domain | Class | Nursing Diagnosis | n | % |
|---|---|---|---|---|
| 1- Health promotion | 2- Health Control | Ineffective protection | 39 | 53.42 |
| 2- Nutrition | 1- Ingestion | Impaired swallowing | 37 | 50.68 |
| | | Unbalanced nutrition: less than the bodily needs | 51 | 69.86 |
| | 4 - Metabolism | Risk of unstable glycemia | 56 | 76.71 |
| | 5- Hydration | Poor fluid volume | 51 | 69.86 |
| | | Excessive fluid volume | 49 | 67.12 |
| 3- Elimination and Exchange | 1- Urinary function | Impaired urinary output | 56 | 76.71 |
| | | Urinary retention | 53 | 72.60 |
| 4- Activity/Rest | | Decreased cardiac output | | 68.49 |
| | | Ineffective respiratory pattern | 50 | |
| | 4- Cardiovascular/pulmonary responses | Risk of ineffective cerebral tissue perfusion | 52 | 71.23 |
| | | Impaired Spontaneous Ventilation | 39 | 53.42 |
| | | | 52 | 71.23 |
| | 5- Self-Care | Self-care deficit for food | 40 | 54.79 |
| | | Self-care deficit for bath | 60 | 82.19 |
| 11- Security/Protection | 1- Infection | Risk of infection | 64 | 87.67 |
| | 2- Physical injury | Shock risk | 48 | 65.75 |
| | | Impaired skin integrity risk | 56 | 76.71 |
| | | Ineffective airway clearance | 46 | 63.01 |
| | | Risk of injury | 58 | 79.45 |
| | | Risk of falls | 41 | 56.16 |
| | | Risk of bleeding | 37 | 50.68 |
| | | Risk of trauma | 49 | 67.12 |
| | | Risk of vascular trauma | 61 | 83.56 |

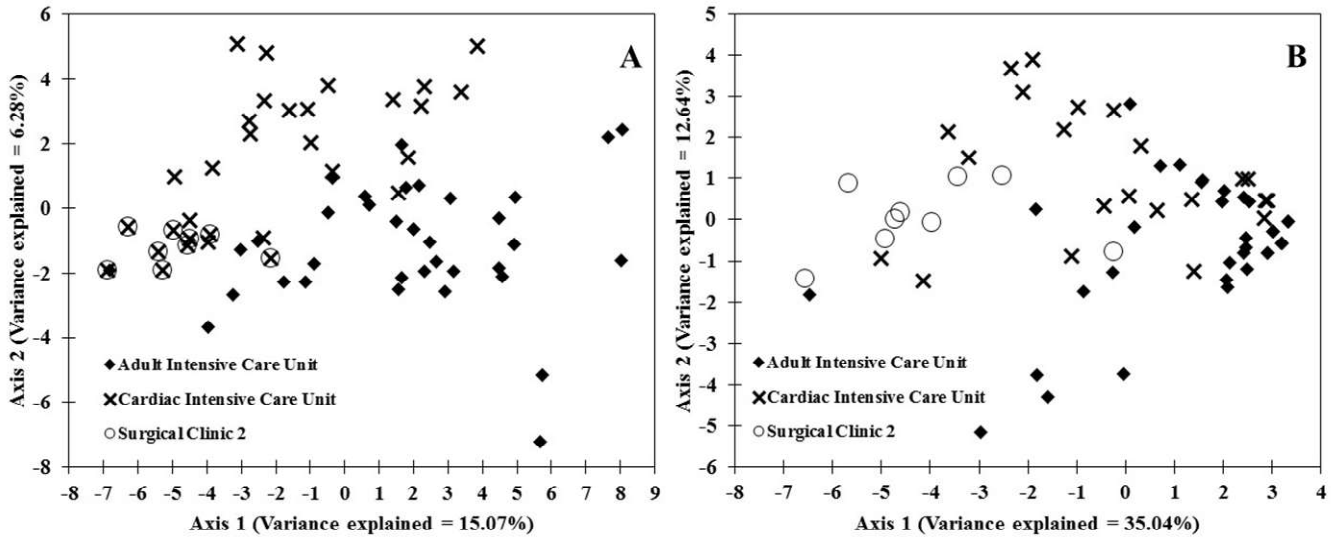


**Figure 1. Principal Component Analysis of Chronic Kidney Disease patientsbased on profile of the nursing diagnosis in three units from a public and university hospital, Brazil, 2017. A. Based on all diagnosis presented. B. Based on the 23 most prevalent diagnosis. Uberlândia, Brazil, 2017**

cardiac tissue perfusion, n = 28 (38.36%); Risk of electrolytic imbalance, n = 26 (35.62%); Ineffective peripheral tissue perfusion, n = 26 (35.62%); impaired oral Mucosa, n = 23 (31.51%); Impaired skin integrity, n = 23 (31.51%); Impaired ambulation, n = 22 (30.14%); Sleep deprivation, n = 22 (30.14%); Dysfunctional gastrointestinal motility, n = 22 (30.14%); Deficit in self for intimate hygiene, n = 19 (26.03%); Constipation, n = 17 (23.29%); Aspiration risk, n = 17 (23.29%); Activity intolerance, N = 17 (23.29%); Risk of constipation, n = 14 (19.18%); Decreased intracranial adaptive capacity, n = 14 (19.18%); Functional urinary Incontinence, n = 12 (16.44%); Risk of deficient fluid volume, n = 12 (16.44%); Impaired physical mobility, n = 12 (16.44%); Fragile elderly syndrome, n = 12 (16.44%); Impaired dentition, n = 11 (15.07%); Acute confusion, n = 11 (15.07%); Ineffective regulation term, n = 10 (13.7%); Diarrhea, n = 10 (13.7%); Obesity and overweight, n = 9 (12.33%); Hypothermia, n = 9 (12.33%); Allergic response to Latex, n = 9 (12.33%); Impaired bed mobility, n = 9 (12.33%); Fatigue, n = 9 (12.33%); Impaired sleep pattern, n = 9 (12.33%); Impaired comfort, n = 9 (12.33%); Hyperthermia, n = 8 (10.96%); Impaired verbal communication, n = 8 (10.96%); Acute pain, n = 8 (10.96%); Intestinal incontinence, n = 7 (9.59%); Urinary incontinence reflex, n = 7 (9.59%); Sexual dysfunction, n = 7 (9.59%); Ineffective infant feeding pattern, n = 7 (9.59%); Risk of contamination, n = 7 (9.59%); Risk of acute confusion, n = 6 (8.22%); Risk of impaired hepatic function, n = 6 (8.22%); Impaired environmental interpretation syndrome (it was removed in the 2012-2014 edition), n = 5 (6.85%); Risk of peripheral neurovascular dysfunction, n = 4 (5.48%); Deficit in self for dressing, n = 4 (5.48%); Chronic pain, n = 4 (5.48%); Urgency urinary incontinence risk, n = 3 (4.11%); Impaired transfer capacity, n = 3 (4.11%); Insomnia, n = 3 (4.11%); Risk of activity intolerance, N = 2 (2.74%); ambulation, n = 2 (2.74%); Sedentary lifestyle, n = 2 (2.74%); Overflowing urinary incontinence, n = 2 (2.74%); Stress urinary Incontinence, n = 1 (1.37%); Risk of disuse syndrome, N = 1 (1.37%); Social isolation, n = 1 (1.37%); Caregiver Role

Tension, n = 1 (1.37%); Ineffective health control, n = 1 (1.37%); Ineffective family health control, n = 1 (1.37%); Risk of injury by perioperative positioning, n = 1 (1.37%); Deficient recreation activity, n = 1 (1.37%); Ineffective breastfeeding, n = 1 (1.37%); Delay in growth and development (it was removed in the 2012-2014 edition), n = 1 (1.37%); Hopelessness, n = 1 (1.37%); Chronic confusion, n = 1 (1.37%); Nausea, n = 1 (1.37%); Anxiety, n = 1 (1.37%); Self-mutilation, n = 1 (1.37%).

## DISCUSSION

Scientific studies for patients with chronic kidney disease are similar to the sociodemographic profile of this study. Male and white skin variables predominated, which corroborate the results of a study that characterized the profile of chronic kidney patients living in the city of Itabuna (Oliveira *et al*., 2015). Such information is also similar with the results of the Brazilian Society of Nephrology (SBN), which describes the percentage of patients in Brazil with CKD undergoing hemodialysis (Sesso *et al*., 2012). In this study, most patients had a partner. There was a study that also identified the prevalence and factors associated with CKD in patients admitted to a university hospital (Pinho, 2015). Regarding the comorbidities found, systemical arterial hypertension stands out as a prevalent condition in patients with a medical diagnosis of CKD. This fact is also found in several studies with adults with CKD. The presence of this variable is justified by the male vulnerability to chronic diseases, such as systemical arterial hypertension and diabetes mellitus, the main risk factors for the development of CKD. Elevated blood pressure is a significant risk factor for cardiovascular morbidity and mortality in patients undergoing dialysis and it is associated with loss of renal function (Lieder *et al*., 2017). Also, men attend health services less frequently and this may be considered as one of the causes that make early diagnosis and treatment of associated comorbidities difficult. This fact may justify the findings (Brasil, 2009). It has also been found that CKD is diagnosed worldwide in the late years, justifying the fact that people belonging to the risk groups do not perform laboratory tests to assess renal function (Stevens *et al*., 2005), especially in basic health care in which the CKD is poorly diagnosed by general professionals (Schieppati *et al*., 2005). It is also emphasized that the early diagnosis of CKD is of great importance since it provides a decrease in the mortality of cardiovascular causes; decreases treatment costs, both for delaying CKD progress and the onset of renal substitutive therapy, referral to the nephrologist in advance, and improvement of patients' quality of life.

Then, the heart diseases were highlighted with 56.16% of the patients. The scientific literature shows a significant association of heart failure with CKD, and having heart failure increases 2.6 times the chance of the patient having CKD (Pinho *et al*., 2015). Diabetes mellitus was found as another comorbidity, reaching 35.62% of patients with CKD, which corroborates a study that identified as one of the main findings the association between CKD patients and the main cardiovascular risk factors: systemic arterial hypertension and diabetes mellitus, considered factors for intervention and early prevention of complications (Pinho *et al*., 2015). Regarding hypothyroidism (15.07%), one of the hypotheses that associates this condition with CKD is that altered thyroid function causes a decrease in myocardial contractility and cardiac output, increased peripheral resistance and results in systemic and renal vasoconstriction. These factors decrease renal blood flow and, consequently, glomerular filtration rate (Van Hoek, 2009).Obesity (13.7%) was associated with hemodynamic, structural and histological renal alterations among patients with CKD, as well as metabolic and biochemical disorders predisposing to CKD (Kopple, 2011). Regarding the relationship between CKD and dyslipidemia (13.7%), it has already been described in the literature, but the reasons are still unknown. Regarding the age group, the mean age was 67.6 years, with extremes ranging from 26 to 92 years old. A study performed at a university hospital in the state of São Paulo also found a similar result, that is, prevalence of CKD among older people (Pinho, 2015). The average Body mass index of 25.69 was considered to be above the ideal weight. This variable is justified by the growth of overweight and morbidly obese populations in the last decades. Smoking and alcoholism were found in less than 50% of the patients´ medical records. This factor is considered to be a trigger for SAH and other comorbidities that may further compromise the chronic condition presented by the patients, and the individuals who smoke are more vulnerable to CVD, pulmonary diseases, AC and other chronic conditions when compared to patients who do not smoke (Brasil, 2009). Furthermore, it is evident that smoking is related to increased mortality and the occurrence of HF in patients with CKD, especially in patients whose disease is more advanced (Thomas, 2008). Regarding to alcohol consumption, it is advisable to pay attention to the habits of life that potentially cause damages to the health of the population. In a study of 32,389 people with the objective of determining the impact of alcohol consumption and the incidence of SAH, it was concluded that high alcohol consumption increased the risk of Systemic arterial hypertension, especially among men (Peng *et al*., 2013).

A study showed a higher mortality rate among patients with CKD when compared with those who did not present the disease (Pinho *et al*., 2015). Therefore, the number of patients that evolved to death in this study is justified, especially in the Adult ICU sector, which presented patients with high complexity in a serious condition with a prognosis that is often unfavorable, which predisposes them to the outcome of death.An average of 12.67 days and an average hospitalization of 33.04 days were identified. These data are similar to a study that assessed the financial cost of CKD management in patients referred early or late to the nephrologist, who demonstrated an average of 25 days of hospitalization for patients with early nephrology follow-up and 41 days for patients sent later (McLaughlin *et al*., 2001). Most patients with CKD underwent hemodialysis (67.12%), according to the medical records. The survival of people with CKD is related to methods of artificial blood filtration, such as hemodialysis. One study showed an average of 4.7 years (ranging from 1 to 13 years) and 23.9% of the cases had one to two years of hemodialysis treatment (Oliveira *et al*., 2015). The infection was the main complication, totaling 60.27% of the cases. This can be explained by the large number of patients admitted to the Intensive Care Unit (ICU). Critical ICU patients are more susceptible to hospital infection compared to other sectors since they end up providing assistance to more severe cases, and the patients who are attended are more exposed to infections. It should be mentioned the severity of the case and the variety of invasive procedures they are subjected, resulting in a high mortality rate in this place when compared to others in the hospital context. Also, infection is highlighted as one of the main complications in patients with CKD. Many of these

infections are related to the need of these patients for a vascular access for the performance of Renal Substitutive Therapy. The possibility of NANDA-I/NOC/NIC binding for the patient undergoing central venous catheter for hemodialysis was identified: Risk of infection/Risk control: Infectious process/Care with vascular device, using scientific evidence for justifying such a connection, recognizing the mechanical and infectious risk that the use of the device brings about the patient undergoing hemodialysis and the clinical severity of its complications (Lima Guimarães *et al*., 2017). As a second major complication, hydroelectrolytic imbalance was found in 49.32% of the patients. With renal injury, the kidneys are unable to perform their homeostatic functions, leading to serious clinical repercussions in the organism, such as altered neurological status or cardiac arrhythmias (Freitas Dutra *et al*., 2012). The cardiac arrhythmias were also found in this study as an important complication in patients with CKD, corresponding to 36.99% of the records analyzed. Anemia is one of the most frequent clinical manifestations in patients with CKD, identified as one of the complications diagnosed in 35.62% of medical records. A significant portion of CKD patients with anemia were identified in a study, even in the early stages, and iron deficiency was a determining factor in this condition. Thus, correction of this complication is essential, since the scientific evidence suggests that the correction of anemia may decrease the rate of progression of CKD (Canziani *et al*., 2006). Hemorrhage is shown as a complication in the research (20.55%), corroborating the data of patients with anemia. According to some studies, patients with CKD who undergo hemodialysis with anticoagulation of the heparin system are more likely to have hemorrhages (Breitsameter *et al*., 2008). Regarding the nursing diagnosis, there were 23 major nursing diagnosis were identified, according to the NANDA classification 2015-2017 (NANDA, 2015-2017), of which seven were observed in more than 75% of the studied population. It is observed that ten of the 23 nursing diagnosis (43.48%) are risk diagnosis: unstable glycemic risk; risk of ineffective cerebral tissue perfusion; risk of infection; risk of vascular trauma; risk of injury; risk of impaired skin integrity; risk of trauma; risk of shock; risk of falls and risk of bleeding. Of the identified diagnosis, thirteen (56.52%) can be classified as a nursing diagnosis with a focus on the problem: ineffective protection; volume of liquids deficient; unbalanced nutrition: less than bodily needs; excessive volume of liquids; deglutition impaired; impaired urinary output; urinary retention; self-care deficit for bath; impaired spontaneous ventilation; ineffective respiratory pattern; decreased cardiac output; deficits in self-care for food and ineffective airway clearance.

In this study, nursing diagnosis focused on physiological and non-psychosocial problems were concentrated, which was also observed in another study with patients in chronic conditions (Park *et al*., 2017). These findings were not surprising because patients hospitalized with CKD had more physiological problems than psychological problems in comparison with other patients. On the other hand, nurses should be encouraged to identify psychological nursing diagnosis to provide holistic care and establish a plan of care for these patients (Park *et al*., 2017). To this end, nurses should use clinical reasoning and thorough evaluation to select accurate nursing diagnosis (Park *et al*., 2017). It should be noted that the nursing diagnosis of this study were formulated by nurses who work in clinical practice, and there is little evidence that these professionals reach the accuracy of their diagnosis in clinical practice. Lack of attention to diagnosis and accuracy, inadequate knowledge about the complexity of interpreting human responses and the existence of other priorities in the health setting may be reasons for such an occurrence (Park *et al*., 2017; Cruze, 2009). Therefore, this study provides scientific evidence on the use of clinical reasoning to select nursing diagnosis. It is shown the importance of nurses to develop skills and abilities for the elaboration of nursing diagnosis to become good diagnosticians. In short, the accuracy of nursing diagnosis is fundamental for the provision of high-quality care. Thus, research focused on the identification of NANDA-I5 nursing diagnosis is essential for the quality and excellence of nursing care, which makes the decision-making process based on scientific evidence (Park *et al*., 2017). In relation to the domains, the nursing diagnosis were distributed in five: health promotion, nutrition, elimination and exchange, activity/rest, safety/protection. The safety/protection domain stands out with 9 (39.13%) diagnosis, followed by activity and rest with 6 (26.09%); nutrition with 5 (21.74%); elimination and exchange with 2 (8.69%) and, finally, health promotion with 1 (4.35%). In another study that also searched for nursing diagnosis in renal patients submitted to hemodialysis, seven different nursing diagnosis were identified, and three of them were also found in this study: risk of infection, excessive fluid volume, and risk of electrolyte imbalance (Debone, 2017). It is emphasized that nursing diagnosis is of great importance since many have their origin in the onset of CKD and remain over time. Thus, the identification of nursing diagnosis allows for the strengthening and applicability of care provided, since nursing diagnosis conduct nursing care for specific interventions to be implemented in the care plan of these patients (Frazão *et al*., 2014). Finally, it is also emphasized the importance of the holistic approach to the patient, enabling to determine the nursing diagnosis related to all aspects. Thus, the identified nursing diagnosis provided information necessary for a better targeting of nursing care, contributing to the quality of life of these patients (Muniz *et al*., 2015).

**Conclusion**

From the results of this study, it was possible to understand that infection, electrolyte imbalance, arrhythmias, anemia, and heart failure were the main complications among patients with CKD, as the main nursing diagnosis were the risk of infection, the risk of vascular trauma, the deficit in self-care for the bath, the risk of injury and the risk of unstable capillary glycemia. It is important to highlight the relevance of these scientific data, since when applied in the provision of care they contribute to the planning of nursing interventions, directing care to the actual or potential needs of these patients. It is evidenced that this study contributes to the scientific advances in the nursing process by favoring the reduction of scientific knowledge gaps on the main complications and on the main nursing diagnosis in patients with CKD in the care settings. It is also suggested the development of new scientific studies regarding patients with such a pathological process for a more detailed analysis of the complications and nursing diagnosis, to provide better care and consequent increase in the quality of life of these patients.

## REFERENCES

Brasil. Conselho Nacional de Secretários de Saúde. Notas técnicas. Conferências Política Nacional de Atenção Integral à Saúde do Homem. Brasília: CONASS, 2009.

Breitsameter G., Thomé EGDR., Silveira DT. 2008. Complicações que levam o doente renal crônico a um serviço de emergência. Rev Gauch Enferm [Internet]. [cited 2017 Dez 15];29(4): 543-550. Available from: http://www.lume.ufrgs.br/bitstream/handle/10183/23609/000681276.pdf?sequence=1

Canziani MEF., Bastos MG., Bregman R., Pecoits Filho R., Tomiyama C., Draibe SA., *et al*., 2017. Deficiência de ferro e anemia na doença renal crônica. *J Bras Nefrol* [Internet]. 2006[cited Dez 15];28(2):86-90. Available from:www.jbn.org.br/export-pdf/243/28-02-05.pdf

Cruze D., Pimenta C., Lunney M. 2017. Improving critical thinking and clinical reasoning with a continuing education course. *J Contin Educ Nurs* [Internet]. 2009[cited Dec 17]; 40(3), 121–127. Available from: https://www.healio.com/nursing/journals/jcen/2009-3-40-3/%7Bba445b06-1e70-4074-bf2b-3a8d8101cf74%7D/improving-critical-thinking-and-clinical-reasoning-with-a-continuing-education-course#divReadThis

Debone MC., da Silva Nunes Pedruncci E., Peterossi Candido MDC., Marques S., Kusumota L. 2017. Diagnósticos de enfermagem em idosos com doença renal crônica em hemodiálise. *Rev Bras Enferm* [Internet]. [cited 2017 Out 26];70(4). Available from:http://www.redalyc.org/ pdf /2670/267052023019.pdf

Frazão CMFQ., Medeiros ABA., Silva FBBL., Sá JD., Lira ALBC. 2014. Diagnósticos de enfermagem em pacientesrenais crônicos em hemodiálise. Acta Paul Enferm [Internet]. [cited 2018 Mar 07]; 27(1):40-43. Available from: Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S01032100201400010-0009&lng=en.

Freitas Dutra V., Tallo FS., Rodrigues FT., Vendrame LS., Lopes RD., Lopes AC. 2012. Desequilíbrios hidroeletrolíticos na sala de emergência. Rev Bras Clin Med São Paulo[Internet]. [cited 2017 Dez 15];10(5):410-9. Available from:http://www.sbcm.org.br/revistas/RBCM/RBCM-2012-05.pdf#page=45

Jesus NMS, Gracielly F, Mendes-Rodrigues C, Almeida Neto, OP, RodriguesDDM, & Cunha CM. In press. Quality of life of individuals with chronic kidney disease on dialysis. Brazilian Journal of Nephrology [Internet].[cited 2018 Dec ].http://www.scielo.br/pdf/jbn/2019nahead/2175-8239-jbn-2018-0152.pdf

KDIGO. 2013. Clinical practice guideline for the evaluation and management of chronic kidney disease. Chapter 1: Definition and classification of CKD. Kidney int suppl [Internet]. [cited 2018 Mar 07];3(1):19- 62. Available from: http://www.kdigo.org/clinical_practice_guidelines/pdf/ CKD/KDIGO_2012_CKD_GL.pdf

Kopple JD., Feroze U. 2017. The effect of obesity on chronic kidney disease. *J Renal Nutr* [Internet]. 2011[cited Oct 26];21(1):66-71. Available from:http://www. sciencedirect. com/science/article/pii/S1051227610002840

Lieder S., Sartori A., Fassbinder TRC., Schneider J., Wendland J., Winkelmann ER. 2017. Perfil dos fatores de risco cardiovasculares em doentes renais crônicos submetidos ou não a tratamento dialítico. Revista Contexto & Saúde[Internet]. 2013[cited Dez 15];11(21):46. Available from:https://www.revistas.unijui.edu.br/ index. php/contextoesaude/article/view/407/0

Lima Guimarães G., Quispe Mendoza IY., Werli-Alvarenga A., Guimarães Barbosa JA., Reis Corrêa A., Oliveira Guimarães J. *et al*., 2017. Diagnosis, result and intervention of nursing in patients with catheter for hemodialysis. *Rev enferm UFPE on line* [Internet].[cited 2018 Mar 07]; 11(11). Available from: https://periodicos. ufpe.br/ revistas/ revistaenfermagem/article/view/23544

McLaughlin K., Manns B., Culleton B., Donaldson C., Taub K. 2017. An economic evaluation of early versus late referral of patients with progressive renal insufficiency. *Am J Kidney Dis* [Internet]. 2001[cited Dec 15];38(5):1122-8. Available from:http://www.sciencedirect.com/ science/ article/ pii/ S0 272638601849660

Muniz GC., Aquino DMC., Rolim ILTP., Chaves ES., Sardinha AHL. 2018. Diagnósticos de enfermagem em pacientes com insuficiência renal crônica em tratamentohemodialítico .Rev Pesq Saúde [Internet] 2015[cited Mar 07]; 16(1): 34-40. Available from: http://www. periodicoseletronicos.ufma.br/index.php/revistahuufma/article/viewFile/4074/2156

NANDA-I, Inc. Diagnosticos de enfermagem da NANDA: 2015-2017. Porto Alegre: Artmed; 2015.

Oliveira CS., Cardoso daSilva E., Ferreira LW., Skalinski LM. 2015. Perfil dos pacientes renais crônicos em tratamento hemodialítico. *Rev Baiana Enferm* [Internet]. [cited 2017 Dez 15];29(1):42-49.Available from: https://portalseer. ufba.br/index.php/enfermagem/article/viewFile/12633/9541

Park H., Tucker DA. 2017. Capturing Key NANDA□I Nursing Diagnosis From Actual Clinical Data for Patients With Heart Failure. *International journal of nursing knowledge* [Internet]. 2017[cited Dec 17];28(1), 30-36. Available from: http://onlinelibrary.wiley.com/ doi/ 10.1111/2047-3095.12097/epdf

Peng M., Wu S., Jiang X., Jin C., Zhang W. 2013. Long-term alcohol consumption is an independent risk factor of hypertension development in northern China: evidence from Kailuan study. *J Hypertens*[Internet]. [cited 2017 Oct 26];31(12):2342-7. Available from: http://journals.lww.com/jhypertension/Abstract/2013/12000/Long_term_alcohol_consumption_is_an_independent.5.aspx

Pinho L., Aguiar APS., Oliveira MR., Barreto NAP., Ferreira CMM. 2015. Hipertensão e dislipidemia em pacientes diabetes mellitus tipo 2: uma revisão integrativa. Renome[Internet]. [cited 2017 Dez 15];4(1):87-101. Available from: http://www.renome.unimontes.br/ index. php/renome/article/view/89

Pinho NA., Silva GV., Pierin AMG. 2015. Prevalência e fatores associados à doença renal crônica em pacientes internados em um hospital universitário na cidade de São Paulo, SP, Brasil. *J Bras Nefrol* [Internet]. [cited 2017 Dez 15];37(1):91-7.Available from: http://observatorio. fm.usp.br/bitstream/handle/OPI/10793/art_PINHO_Prevalencia_e_fatores_associados_a_doenca_renal_cronica_2015_por.PDF?sequence=1&isAllowed=y

Rehman IU., Khan TM. 2017. Validity and reliability of the Urdu version of the 5D itching scale to assess pruritus among patients with chronic kidney disease in Pakistan. BMC Nephrol[Internet]. [cite 2017 Dec 15];18(1):302. Available from: https://bmcnephrol. biomedcentral.com/articles/10.1186/s12882-017-0717-0

Santos BP., Lise F., Paula EA., Rodrigues LPV., Castelblanco DCC., Schwartz E. Chronic renal insufficiency: an integrative review on studies with a qualitative approach. Rev enferm UFPE on line [Internet]. 2017[cited 2018 Mar 07]; 11(12): 5009-5019. Available from: https://periodicos.ufpe.br/revistas/revistaenfermagem/article/view/15211/25330

Schieppati A., Remuzzi G. 2005. Chronic renal diseases as a public health problem: epidemiology, social, and economic implications. Kidney Int [Internet]. [cited 2017 Dez 15];68:S7-S10. Available from: http://www. sciencedirect. com/science/article/pii/S0085253815512568

Sena Souza E., Belei RA., Dantas de Maio Carrilho CM., Matsuo T., Yamada-Ogatta SF., Andrade G. *et al*., 2017. Mortalidade e riscos associados a infecção relacionada à assistência à saúde. Texto & Contexto Enferm [Internet]. 2015[cited Out 15];24(1). Available from:http:// www. scielo.br/scielo.php?script=sci_arttext&pid=S0104-07072015000100220&lng=en&tlng=en

Sesso RCC., Lopes AA., Thomé FS., Lugon JR., Watanabe Y., Santos DR. 2017. Diálise crônica no Brasil-relatório do censo brasileiro de diálise, 2011. *J Bras Nefrol* [Internet]. 2012[cited Dez 15];34(3):272-277. Available from:http://vml029.epm.br/bitstream/handle/11600/7302/S0101-28002012000300009.pdf?sequence=1&isAllowed=y

Shepherd, GJ. FITOPAC. Versão 2.1. Campinas, SP: Departamento de Botânica, Universidade Estadual de Campinas - UNICAMP. 2010. Leia mais: https://pedroeisenlohr.webnode.com.br/fitopac/

Silva LS., Pereira DF., Lage MRG., Silva LS., Cotta RMM. 2018. Prevalência da doença renal crônica em portadores de hipertensão arterial. JMPHC| *Journal of Management & Primary Health Care* [Internet].2016[cited Mar 07]; 7(1): 53-53. Available from: http://www.jmphc.com.br/saude-publica/index.php/jmphc/article/view/379/Prevalencia

Soares FC., Aguiar IA., Paula Furtado N., Carvalho R F., Torres RA., Segheto W. *et al*. 2018. Prevalência de hipertensão arterial e diabetes mellitus em portadores de doença renal crônica em tratamentoconservador do serviço ubaense de nefrologia. R*evista Científica FAGOC-Saúde [Internet]*. 2017; 2(2):21-26. Available from:http://revista. fagoc.br/index.php/saude/article/viewFile/232/243

Stevens LA., Fares G., Fleming J., Martin D., Murthy K., Qiu J. *et al*., 2005. Low rates of testing and diagnostic codes usage in a commercial clinical laboratory: evidence for lack of physician awareness of chronic kidney disease. *J Am Soc Nephrol* [Internet]. [cited 2017 Dec 15];16(8):2439-48. Available from: http://jasn.asnjournals.-org/content/ 16/8/2439.full.pdf

Thomas R., Kanso A., Sedor JR. 2008. Chronic kidney disease and its complications. Prim Care [Internet]. [cited 2017 Oct 26];35(2):329-44. Available from: http://www.Science-direct.com/science/article/pii/S0095454308000122

Van Hoek I., Daminet S. 2017. Interactions between thyroid and kidney function in pathological conditions of these organ systems: a review. Gen Comp Endocrinol [Internet]. 2009 [cited Dec 15];160(3):205-15. Available from: http://www.sciencedirect.com/science/article/pii/S0016648008004516

*******