ABSTRACT

Objective: to identify the staging of acute kidney injury in diabetic and hypertensive individuals in the primary care through the RIFLE classification. Method: this was a descriptive and exploratory study with a quantitative approach developed in a basic health care unit of the Federal District. Clinical data were collected during nursing consultations, and subsequently, from medical records by means of a questionnaire. Data were expressed as absolute (n) and relative frequencies (%). The analysis of variables was performed using the Fisher’s exact test. P values as <0.05 were considered significant. Results: out of the 79 studied patients, the majority (74.7%) were females at the mean age of 60 ±10 years. Out of the total sample, 5.1% developed renal dysfunction according to the RIFLE classification. The most common comorbidity was hypertension (94.9%). Conclusion: primary care users were at the risk stage according to the RIFLE classification. Descriptors: Hypertension; Diabetes Mellitus; Acute Kidney Injury; Nursing Assessment; Primary Health Care.

RESUMEN

Objetivo: identificar al estudiar a lesión renal aguda en individuos diabéticos e hipertensos en la atención primaria por medio de la clasificación RIFLE. Método: estudio descritivo, exploratorio, de abordaje cuantitativo, desarrollado en una unidad básica de salud del Distrito Federal. Los datos clínicos fueron recolectados durante la consulta de enfermería y, posteriormente, a partir de los registros de prontuarios por medio de un cuestionario. Los datos fueron expresados en frecuencia absoluta (n) y frecuencia relativa (%). El análisis de las variables fue hecho por medio del test exacto de Fisher. P valores como <0.05 fueron considerados significativos. Resultados: de los 79 pacientes acompañados, la mayoría (74.7%) fues de sexo femenino, con edad media de 60 ±10 años. Del percentual total de la amostra, 5,1% evoluciam con disfunción renal de acuerdo con la RIFLE. La comorbilidad más común entre los pacientes fui a hipertensión arterial (94.9%). Conclusión: los usuarios se encontraba no estadio de riesgo de acuerdo con la clasificación RIFLE. Descriptors: Hipertensão; Diabetes Mellitus; Lesão Renal Aguda; Avaliação em Enfermagem; Atenção Primária à Saúde.

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Acute kidney injury (AKI) is a global public health concern associated with high morbidity, mortality, and health care costs. Unlike dialysis, there are therapeutic interventions that can reliably improve survival, lesion extension, or the recovery speed in cases of renal function.  

This pathology is clinically diagnosed and managed through the guidance of a magnitude of alterations in serum creatinine, urine output, or both. In patients who manifest both oliguria and/or azotemia, and those to which these events are persistent, there is increasing propensity to worst outcomes.  

The consensus definition established for AKI resulted in significant advances in the pathophysiological understanding for the identification of patients and disease prognoses. The AKI diagnosis is performed through surrogate markers of the glomerular filtration rate, such as serum creatinine and urine output, although new biomarkers are used in the clinical practice. Serum creatinine is the most clinically used marker to evaluate renal function, although it is limited and inaccurate in various situations such as in patients with reduced muscle mass or water overload.  

AKI is associated with increased mortality, prolonged hospitalization, and need for renal replacement therapy. Until recently, it was believed that the vast majority of patients could recover from AKI without further consequences. It is now recognized that patients with AKI may have different renal outcomes, including complete recovery, chronic, incipient, and progressive kidney disease, and at the end-stage of renal disease. Factors influencing these results have not been fully evaluated, and therefore, are not fully understood. The demographic characteristics of patients, subsequent clinical evolution, and factors associated with treatment can influence global and renal outcomes. Thus, diabetes mellitus and hypertension may be one of those factors. This led us to investigate the percentage of individuals with these conditions, assisted in the primary care, that were evolving to acute kidney injury.  

This study is justified by the possibility of not only identifying users with acute kidney injury but support the planning and implementation of early preventive measures to prevent the progression of acute kidney injury to a permanent condition.  

**OBJECTIVE**  

- To identify the staging of acute renal injury in diabetic and hypertensive patients in the primary care, through the RIFLE classification.

**METHOD**  

This was an exploratory descriptive study with a quantitative approach, developed in a basic health unit of the Federal District. The study was conducted between May of 2013 and 2014.  

The study included patients aged over 18 years, who were registered in the assistance program for diabetics and hypertensives, and excluded those with previous renal transplant history and chronic renal insufficiency (glomerular filtration rate <60 mL/min/1.73m²).  

The study complied with Resolution 466/12 of the National Health Council and was approved by the Research Ethics Committee of the Education and Research Foundation in Health Sciences from SES - FEPECS/SES - under CAAE 17604713.5.0000.5553. All participants formalized their participation in the study by signing the Voluntary Informed Consent Term.  

The identification of AKI and staging during the study period was conducted through the use of the RIFLE classification represented by the acronym risk, injury, failure, and defining acute kidney injury by a 50% increase in serum creatinine (Figure 1).
Staging | Criteria serum creatinine/glomerular filtration (TFG) | Criteria urinary output
--- | --- | ---
Risk (Risk) | creatinine increase to >150-200% of the baseline (1.5 to 2.0 times) or glomerular filtration rate decrease in >25% | <0.5 mL/kg/h per 6 hours
Injury (Lesion) | creatinine increase to >200-300% of the baseline (>2 to 3 times) or glomerular filtration rate decrease in >50% | <0.5 mL/kg/h per 12 hours
Failure (Failure) | creatinine increase to >300% of the baseline (>3 times) or glomerular filtration rate decrease in >75% | <0.3 mL/kg/h per 24 hours, anuria per 12 hours


Figure 1. RIFLE Classification.

The staging of renal function was performed by the creatinine criteria despite that the classification encourages the concomitant use of the urinary output criteria. The urinary output criteria was not used in this study because of the limitation to an accurate control of urine volume in patients assisted in the primary care unit.

The research was carried out during the nursing consultations conducted by nurses from the hypertension and diabetes program and by the researcher. A questionnaire with questions that characterized the kidney function was adopted. Demographic, clinical, and laboratory data were obtained primarily from the patients’ electronic medical records.

Patients classified in risk stages with lesion or kidney failure by the RIFLE classification were considered with renal dysfunction. Data were expressed as absolute frequency (n) and relative frequency (%). The analysis of categorical variables was performed using the Fisher’s exact test. P values <0.05 were considered significant.

**RESULTS**

A total of 79 patients registered in the diabetic and hypertensive group were followed in this study. Of these, the majority (74.7%) were females at the mean age of 60±10 years and mean body mass index of 28.1±4.4 kg/m². The RIFLE classification showed that 5.1% developed kidney dysfunction. The most common comorbidity among patients was hypertension (94.9%). Diabetes mellitus was identified in 38% of the sample (Table 1).

Table 1. Distribution of patients according to demographic and clinical characteristics. Brasília, Federal District, 2014.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n (%)</th>
<th>Mean (±SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
<td>60±10</td>
</tr>
<tr>
<td>Females</td>
<td>59 (74.7 %)</td>
<td>-</td>
</tr>
<tr>
<td>Body mass index (kg/m²)</td>
<td></td>
<td>28.1±4.4</td>
</tr>
<tr>
<td>Renal dysfunction according to the RIFLE classification</td>
<td>4 (5.1 %)</td>
<td>-</td>
</tr>
<tr>
<td>Comorbidities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>75 (94.9 %)</td>
<td>-</td>
</tr>
<tr>
<td>Diabetes</td>
<td>30 (38.0 %)</td>
<td>-</td>
</tr>
<tr>
<td>Body mass index ≥ 25 kg/m²</td>
<td>58 (73.5 %)</td>
<td>-</td>
</tr>
<tr>
<td>Obese</td>
<td>24 (30.4 %)</td>
<td>-</td>
</tr>
</tbody>
</table>

**DISCUSSION**

The early detection of AKI in the primary care is still a major challenge in the scientific community because it is a multifactorial and complex disease. However, nowadays it is recognized that a significant proportion of patients admitted with AKI, initially developed this pathology in the community. Thus, more understanding and evidence are...
Almeida SLM de, Silva KGN da, Magro MCS.

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