

EVALUATION OF ANTIHYPERTENSIVE USED IN THE CHRONIC RENAL FAILURE PATIENTS AT INTERNAL MEDICINE WARD PGI CIKINI HOSPITAL JAKARTA

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ABSTRACT

Chronic renal failure (CRF) is defined as renal function abnormality by the presence of protein in the urine (proteinuria) and kidney function decline for 3 months or more to progressive renal failure terminal². The most common causes of CRF are diabetes and hipertensi. Antihypertensive medication is used to treat hypertension or high blood pressure. Antihypertensive drugs are known, such as diuretics, alpha blockers, beta blockers, adrenergic receptor blockers, calcium antagonists, RAAS inhibitors, and vasodilator. The purpose of this research was to evaluate the accuracy of indication, patient, medication, and dosage of antihypertensive use in CRF patients in Ward Medicine at PGI Cikini Hospital from April to May 2014. Beside that to determine the antihypertensive drugs most widely used to lower blood pressure in CRF patients in the Internal Medicine Ward at PGI Cikini hospital. This research is descriptive evaluative and data collection was done retrospectively. The results showed that 13 cases (86.7%) CRF patients were using antihypertensive from total 15 cases with a diagnosis of CRF. Evaluation of the using of antihypertensive use shows accuracy of indication 100%, accuracy of patients 84.6%, accuracy of drug 80%, accuracy of dose 100% and accuracy of dose determination in hemodialysis patients 85.7%. The most widely used antihypertensive in CRF patients at Cikini Hospital during this research was captopril and anti-hypertensives for CRF patients undergoing hemodialysis were amlodipine.

Keywords: Chronic Renal Failure, antihypertensive, PGI Cikini Hospital.

INTRODUCTION

CRF is often associated with diabetes or hypertension is a serious health problem and a public health economy problem in the world. The number of CRF patients more increased in the world, about 20-30% of patients had levels of renal impairment requiring renal replacement therapy. Diabetes and hypertension are the two most common causes and they are associated with higher risk of death due to cardiovascular disease. CRF patient mortality 10-20 times higher than in the general population [1]. The purpose of kidney management is to restore kidney function and maintains homeostasis as long as possible. All the factors that support and contributing

factors that can be recovered (such as, obstruction) are identified and resolved. Hypertension is treated with intravascular volume control and antihypertensive drugs [2].

RESEARCH METHODOLOGY

Research Design

This study is a descriptive evaluative research. Observations conducted a retrospective review from medical records of CRF patients in Internal Medicine Ward at PGI Cikini hospital Jakarta from April 7 until May 30, 2014. Patient data were recorded in the patient's medical record in internalmedicine ward at PGI Cikini hospital

which includes the identity of the patient, the profile of subjective, objective, observation of vital signs, assessment and management of treatment by a physician during the research period. Data analysis was done by evaluating the accuracy of indication, patient, doses and also Evaluate of antihypertensive use to CRF Patients and evaluation of antihypertensive use to CRF Patients undergoing hemodialysis, as Compared with NKF-K/DOQI literature and other literature.

RESULTS AND DISCUSSION

Characteristics of Research Subjects

Distribution of patients by gender showed that male patients (60%) more than female patients (40%). This is according to result a meta-analysis study represent that men more progressive to kidney damage (non-diabetic) than women [3]. Distribution of patients by age is shown in Figure 1. Could be seen that happen in many CRF patients aged 51 years old and over. The analysis conducted NHANES III (National Health and Nutrition Examination Survey) that the higher prevalence of CRF in the presence of increasing age, black race, male gender, and presence of hypertension disease [4].

Distribution of Patients According to Complications Disease of CRF

Distribution of patients according to disease complications of CRF. NKF-K/DOQI mention the complications that commonly occur in CRF stages 3-5 are anemia, metabolic acidosis, secondary hyperparathyroidism, impaired fluid and malnutrition [5]. Distribution of patients by complications of CRF can be seen in table 1 below.

Distribution of Patients According to Measures Renal Replacement Therapy

Distribution of patients based measures renal replacement therapy. Handling of the doctor to CRF patients in this research is not only conservative measures such as taking medication (pharmacological treatment), but also by the actions of hemodialysis (HD) and CAPD (Continuous Ambulatory Peritoneal Dialysis). Distribution of patients receiving HD and CAPD action can be seen in table 2.

Accuracy Evaluation of Indication

The results showed that parameters of antihypertensive use accordance has a accurate indication 100% because antihypertensives have been given to patients with a diagnosis of CRF, whether accompanied or not accompanied by hypertension.

Accuracy Evaluation of Patients

The results showed that categories of antihypertensive use with accurate of patients as much as 11 cases (84.6%) and was not accurate as much as 2 cases

(15.4%). Accuracy of patient parameters based on the value of laboratory checkup and diagnoses by doctors because of the limitations of existing medical records.

Accuracy Evaluation of Drug

Research in CRF patients in internal medicine ward showed use of antihypertensive in the category of accurate drugs as much as 10 cases (80%) and inaccurate medication as much as 3 cases (20%).

Accuracy Evaluation of Doses

In this study the dose of antihypertensive said to correspond if they have been in the range of the minimum dose and maximum dose per day according to NKF-K/DOQI. This study was conducted on 13 cases of CRF patients were given antihypertensive. The results of this study showed that 4 patients were given 5 mg of amlodipine in accordance with the literature by NKF-K/DOQI. 3 patients were given 5 mg of bisoprolol in accordance with the literature by NKF-K/DOQI. 6 patients were given 12.5 mg of captopril in accordance with the literature by NKF-K/DOQI. 1 patients were given 80 mg of valsartan in accordance with the literature by NKF-K/DOQI. 2 patients were given 40 mg of furosemide in accordance with the literature by NKF-K/DOQI. Based on the above, the accuracy of dose evaluation showed that 100% of the cases turned out to be the right dose. More detail can be seen in Table 3.

Accuracy Evaluation of doses was also performed in patients undergoing hemodialysis (HD). CRF patients were taking captopril and ongoing HD should receive a dose adjustment (supplemental dose) because captopril occur dialysis during HD therapy. Dose of captopril 12.5 mg for three times daily to hypertension cause captopril effect is not optimal. The dose of amlodipine in patients with HD according to the usual dose is 5 mg for amlodipine not occur dialysis in hemodialysis process. These results indicate that the accuracy of the dose in CRF patients who received hemodialysis therapy 85.7% accurate dose and 14.3% is inaccurate dose.

Evaluation of Antihypertensive Used

Antihypertensives used to lowering blood pressure in CRF patients in Internal Medicine Ward PGI Cikini hospital in April-May 2014 can be seen in Figure 2. On the graph shown that captopril (ACEI) is an antihypertensive drug that is most widely used. This is consistent with the literature which states that an ACEI is antihypertensive drug recommended for diabetic renal disease and non-diabetic renal disease with proteinuria. The advantage of ACEI is to reduce levels of the protein, preventing the progression of the disease and prevent complications of heart disease by lowering blood pressure either used singly or in combination.

Evaluation of antihypertensive drugs use was also performed in patients undergoing hemodialysis (HD). CRF

patients undergoing HD is mostly given amlodipine. According to the literature antihypertensive recommended for CRF patients undergoing HD is amlodipine and

nifedipine (calcium antagonist) because both classes of these drugs have little or not occur dialysis during hemodialysis process [10].

Table 1. Distribution of Patients According to Complications Disease of CRF

| Complication | Number of Cases | Percentage (%) |
|---------------|-----------------|----------------|
| anemia | 10 | 52.6 |
| acidosis | 7 | 36.8 |
| hyperkalemia | 0 | 0 |
| hyponatremia | 0 | 0 |
| hypernatremia | 2 | 10.6 |
| total | 19 | 100 |

Table 2. Percentage Type of CRF

| Type of CRF | number of cases | Percentage (%) |
|-------------|-----------------|----------------|
| HD | 8 | 53.3 |
| CAPD | 0 | 0 |
| Not both | 7 | 46.7 |
| Total | 15 | 100 |

Table 3. Type of antihypertensive Drugs in CRF patients at internal medicine ward PGI Cikini Hospital

| Patient | Antihypertensive Drugs | Doses |
|------------|------------------------|----------|
| Patient 1 | Amlodipin | 5 mg |
| | Bisoprolol | 5 mg |
| Patient 2 | Captopril | 12.5 mg |
| Patient 3 | Captopril | 12.5 mg |
| Patient 4 | Captopril | 12.5 mg |
| Patient 5 | Amlodipin | 5 mg |
| Patient 6 | Amlodipin | 5 mg |
| Patient 7 | Captopril | 12.5 mg |
| Patient 8 | Captopril | 12.5 mg |
| Patient 9 | Bisoprolol | 5 mg |
| Patient 10 | Bisoprolol | 5 mg |
| Patient 11 | Valsartan | 80 mg |
| | Lasix | 40 mg |
| Patient 12 | Amlodipin | 5 mg |
| | Captopril | 12.5 mg |
| Patient 13 | Furosemide | 40 mg |
| | Valsartan | 80 mg |
| Total | | 13 cases |

Figure 1. Distribution of patients by age

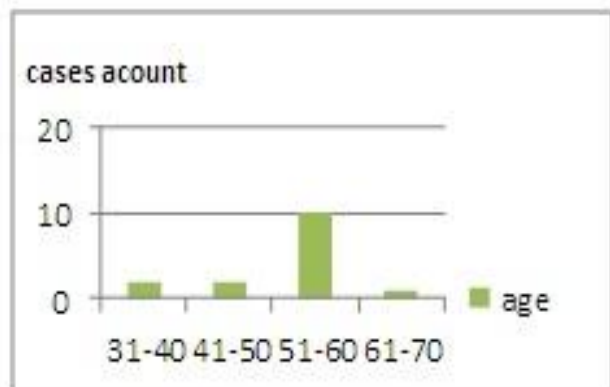
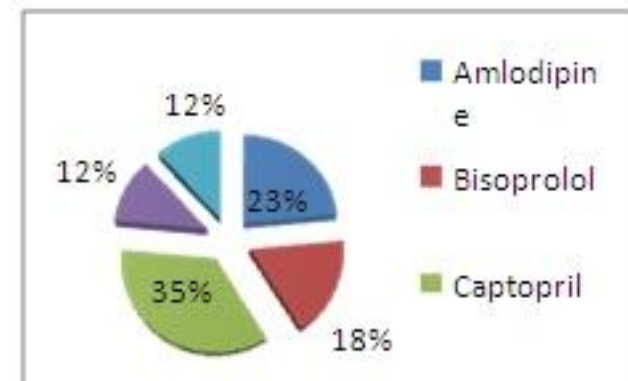


Figure 2. Evaluation of antihypertensive used



CONCLUSION

Results of this research can conclude that:

1. Patterns of antihypertensive used in internal medicine ward at PGI Cikini Hospital Jakarta in April-May 2014 there were 13 CRF cases (86.7%) using antihypertensive of the overall 15 cases with a diagnosis of CRF.
2. Evaluation of antihypertensive use in this study:
 - a. Accuracy evaluation of indications showed that antihypertensive use to accurate indication amount 100%.
 - b. Accuracy evaluation of patients showed that 84.6% antihypertensive use accurate patients and inaccurate of

- c. Patients 15.4%.
- d. Evaluation of Antihypertensive Use was showed 80% accurate dose and 20% inaccurate doses.
- e. Accuracy evaluation of dose showed that administration of antihypertensive drug 100% compliance with recommended. Accuracy evaluation of dose in hemodialysis patients showed that 6 cases (85.7%) accurate dose and 1 case (14.3%) inaccurate dose.
3. Antihypertensive drug most widely used in CRF patients is captopril and most widely used for hemodialysis CRF patients was amlodipine.

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