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# The effect of using antihypertensive drugs in hypertensive patients with kidney failure in hospital outpatients, Jember regency

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**ABSTRACT**
Hypertension was a condition where systolic blood pressure was more than equal to 140 mmHg and diastolic was more than equal to 90 mmHg after two separate measurements and was one of the main risk factors for kidney failure because it can cause damage to blood vessels in the kidneys so that reduces the ability of the kidneys to filter blood properly. Hypertension was a disease with a high incidence rate worldwide and was a cause of death, around 1.13 billion people in the world have hypertension and its complications, therefore the aim of this study was to determine the effect of using antihypertensive drugs in hypertensive patients with kidney failure in hospital outpatients, jember regency. In a study using a cross-sectional design, the population in this study were all hypertensive patients with kidney failure who were outpatients in hospital outpatients, jember regency in the period December 2022-March 2023. The number of samples used probability sampling with the proportionate stratified random sampling technique as many as 100 patients in hospital outpatients, jember regency. The results of this study indicate that there was an effect of using antihypertensive drugs in hypertensive patients with kidney failure. Based on the output of "Test Stalistics", it is known that Alsymp.Sig. (2-tailed) has a value of 0.002. The calrenal value is 0.002 less than <0.05, malkal was concluded as "Hypothesis accepted". Alrtinyal aldal antihypertensive drug use paldal hypertensive patients with renal failure in hospital outpatients, jember regency. The blood pressure before the use of antihypertensive paldal antihypertensive medication with renal failure, that was, paldal paldal hypertension with gallstone saltu, while the blood pressure after the use of antihypertensive paldal pallid hypertensive patients with renal failure decreases in dual staging hypertension. From a statistical analysis using the Wilcoxon Maltch Palirs Test, it was discovered that Halsil might actually have an effect on the use of antihypertensive drugs in hypertensive patients with kidney failure in hospital outpatients, jember regency.



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## INTRODUCTION

The increasing flow of globalization has brought many changes to people's behavior and lifestyle, as well as the environmental situation, namely changes in food consumption patterns. These changes have unknowingly affected the epidemiological transition with the increasing cases of non-communicable diseases. One of the non-communicable diseases that has a relatively high morbidity and incidence and has a major impact on the morbidity, mortality and socio-economic conditions of the community due to the relatively high cost of treatment, namely kidney failure (Netha Damayantie et al., 2022). Kidney failure was also related to hypertension, a person was more at risk of developing kidney failure if they have high blood pressure or it was called hypertension. Hypertension was a disease with a high incidence rate worldwide and was a cause of death, most of the causes of hypertension were unknown (essential hypertension / primary hypertension), a small proportion of hypertension was caused by acquired diseases (secondary hypertension). Hypertension can be prevented by therapeutic treatment, namely pharmacological therapy and non-pharmacological therapy. Pharmalcological therapy is by using calcium anti-hypertensive medications that have been proven to reduce phlegm, namely AlCE inhibitor therapy is the first line of treatment for hypertension some callus asphalt, while the remaining non-phamalcological therapy is also called vital function modifications which include changes to vital functions such as lowering the voltage baldaln, DAlSH diet, galralm restriction in physical activity don't always work malnfalalt balgi palsien continues to normal, especially at altals 80 years, so it requires customization (Ministry of Health, 2021).

The use of drugs in patients with kidney failure who have hypertension must also pay more attention, because the ability of the kidneys to excrete and was needed to support the success of therapy so that it fits the patient's main goals (Makmur et al., 2022). Antihypertensive drugs have a route of elimination through the kidneys. In conditions of kidney failure, antihypertensive drugs can cause accumulation in the kidneys so that it can worsen kidney prognosis. Therefore special attention and action were needed, especially choosing antihypertensive drugs that were comfortable for the kidneys (Selly et al., 2022). According to the ESC/ESH Guidelines, kidney failure with hypertension can be treated by using antihypertensive drugs from the CCB class, ARBs, beta blockers, ACE-inhibitors, and diuretics (Mancia et al., 2018). But it turns out that the use of antihypertensive drugs in patients with kidney failure has a detrimental effect on several groups. In previous studies the use of β-blockers actually requires special attention, especially in patients with kidney failure. There was because hypertension therapy with ß-blockers in patients with chronic renal failure has been reported to cause decreased kidney function, this effect may be due to a reduction in renal blood flow and glomerular filtration rate due to reduced cardiac output and decreased blood pressure by drugs. Therefore it was necessary to conduct research on the effect of treatment in hypertensive patients with kidney failure.

In treatment it was very important to see the effect in administering the drug because it affects the patient's recovery. The effect of using a drug was said to be irrational if the possible negative impact received by the patient was greater than the benefits. If during treatment the patient has not recovered, it could be because the treatment was not optimal

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or the patient was using the drug incorrectly and was not compliant. In this study the effect of drug use was measured by the decrease in blood pressure after being given antihypertensive therapy.

Data (WHO) for the 2020 period shows that around 1.13 billion people in the world have hypertension, meaning that 1 out of 3 people in the world was diagnosed with hypertension. The number of people with hypertension continues to increase every year, it was estimated that by 2025 there will be 1.5 billion people affected by hypertension, and it was estimated that every year 9.4 million people die from hypertension and its complications (Purwono et al., 2020). In 2020 there will be an increase of 14.10% in people with hypertension in East Java Province who will receive health services according to standards in 2021 of 51%. In hospital outpatients, jember regency in 2022 as many as 861 people or around 3.17%.

The impact of hypertension with kidney failure can damage the kidney blood vessels and make these organs unable to function properly. The kidneys play an important role in removing toxic substances such as urea, creatinine and ammonia. Creatinine was one of the end products excreted by healthy kidneys, high levels of creatinine in the blood can indicate weak kidney function. Uncontrolled hypertension will lead to complications and can worsen the health of other organs including the kidneys, with terminal renal impairment as much as 26.8% and 50-75% experiencing chronic kidney disorders (Arfah, 2021).

The existence of a pharmacist was very important in order to be able to monitor and assess the effectiveness of drugs in patients with kidney failure. The solution to this problem as pharmacists in terms of monitoring drug therapy in hospital pharmacy service standards, in this case, was to play an active role in the management of hypertension therapy through Pharmaceutical care (PC) services by conducting assessments, preparing treatment plans, implementing and monitoring, reducing risk factors for the occurrence of hypertension by conducting PIO and counseling. Starting a healthy lifestyle, reducing salt and fat intake, diligently taking medication and taking medication were ways for pharmacists to be able to reduce patient risk factors every time they come to the pharmacy.

In a preliminary study conducted in hospital outpatients, jember regency, hypertension with kidney failure was included in the top 10 diseases in 2022 and found 893 patients or 3.25%. Antihypertensives that were often used in hospital outpatients, jember regency in patients with kidney failure were CCB and ARB groups. The group that was used the most was the CCB group, namely amlodipine, the group that was used the second most was the ARB group, for example, candesartan, and the third most used valsartan. And there were also those who use beta blockers, namely atenolol, bisoprolol, carvedilol, and nadolol. While the beta blocker group itself can make kidney function decrease.

Based on the description above, it shows that there was a high prevalence of hypertensive patients with kidney failure and there were many risk events for drug selection, inaccuracy in drug selection, from this the researchers were interested in conducting research on "The Effect of Using Antihypertensive Drugs on Hypertensive Patients with Kidney Failure Outpatient Hospital, Jember Regency".

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## METHOD

This study uses a quantitative analysis research design with a cross-sectional approach. The population used in this study were hypertensive patients with kidney failure who were included in the inclusion criteria as many as 192 patients who were hospitalized as outpatients. Jember Regency for the period December 2022 - March 2023. The sample size in this study was 100 samples, using the slovin formula. The sampling method used by researchers was probability sampling with a proportionate stratified random sampling technique, namely taking samples from members of the population randomly and stratified proportionally. The inclusion criteria determined in the research were as follows:

1. Hypertensive patients with kidney failure, who were undergoing treatment in hospital outpatients, jember regency Jember
2. Palsient period December 2022-Malret 2023
3. Hypertensive patients who have antihypertension
4. Palsient aged ≥ 18 years

The exclusion criteria that were determined in the study were the patients who died. The data used was Primary data and Secondary data. Primary Data, namely data which was obtained directly by calral seeing palsient when checked for dalralh after being given therapy and accompanied by medical equipment. Secondary data namely data obtained from Daltal medical record of hypertensive patients with kidney failure at the outpatient installation at hospital, jember regency, was then analyzed by secalral analysis, which was analyzed to determine the effect of taking antihypertensive drug paldal paldal hypertensive patients with kidney failure and then processed using IBM SPSS 25. AI the analysis used namely univariate and bivariate analysis. Univariate analysis was an analysis that aims to find out the results of the data collection in the form of a frequency distribution table, while the bivalve analysis in this study uses the palired sample t test of the partial altalu test. In this research, first look at the scale of measurement, namely the ordinalls with the form of comparative hypotheses, as well as comparisons in the dual samples which were interconnected with each other, from the statistical book according to Prof. Dr. Sugiyono Paldal Halalmaln 134 mentioned that the alpalbilal examiner tested the dual sample comparability hypothesis that correlated using the Wilcoxon Maltch Palirs Test statistical test.

## RESULTS AND DISCUSSION

The data obtained from the research that was carried out during the experiments showed that the number of patients suffering from hypertension with kidney failure using antihypertensive therapy always for the period December 2022 - March 2023 was equal to 192 patients in the total medical record, the total amount was according to the population, at least for the sample, it's a total of 100 The palsient that was tested in the calculations uses the Slovin formula. For taking the paldal sample in this study, probability sampling was used with the proportional stratified random sampling technique.

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Data collection was carried out according to the procedure in the hospital setting. The alternative to taking data was in the form of an antihypertensive drug that was used in hypertensive patients with renal failure, these drugs have their own characteristics. In addition, the anti-hypertensive drugs obtained in this study were general and specific drugs. General Data includes the type of gender patient, usually patient and several factors of blood pressure, cholesterol, too much cholesterol, smoking, and stress, while special.

The general modalities used in this research include several characteristics. Palsient characteristics were characteristics that each patient has that distinguishes him from other patients. Unfortunately, in this study there were limitations to the study, namely the polyclinic itself did not allow it to go down directly to check the patient's blood pressure and interview in person so the researcher could only observe the patient directly accompanied by staff and also supervisors 2 because the researcher did not have a deep understanding of the patient's objective (Mayasari, 2020).

**Characteristic Of Hypertensive Patients With Kidney Failure Who Use Antihypertensive Drugs Based On Gender**

Characteristics of hypertensive patients with kidney failure who used antihypertensive drugs based on gender therapy in hospital outpatient installations can be seen below:

**Table 1.** Calculatory Characteristics Of Hypertensive Patients With Kidney Failure In Outpatient Hospital, Jember Regency Was Based On Gender.

| No. | Gen | Frequency (n) | Persentage (%) |
|---|---|---|---|
| 1. | Male | 51 | 51% |
| 2. | Female | 49 | 49% |
| | Total | 100 | 100% |

Based on the gender classification, there were 51 patients (51%) who suffered from hypertension and kidney failure, more men with 51 patients (51%) than women with 49 patients (49%). The cause of the male gender was often known as kidney failure disease, which was in a lifestyle that was not healthy every day, such as the unhealthy consumption of fast snow meals, busy life that causes stress, sitting all day at the office, often drinking coffee and also energy drinks, bitch consuming white water as well. habit of smoking.

**Characteristic Of Hypertensive Patients With Kidney Failure Who Use Antihypertensive Drugs Based On Age**

Characteristics of hypertensive patients with kidney failure who used antihypertensive drugs based on age therapy in hospital outpatient installations can be seen below:

**Table 2.** Calculatory Characteristics Of Hypertensive Patients With Kidney Failure At The Installation Of Ralwalt Jallaln Based On Age-Old Management At Hospital.

| No. | AGE RANGE | Frequency (n) | Persentage (%) |
|---|---|---|---|
| 1. | 18-25 year | 0 | 0% |
| 2. | 26-35 year | 4 | 4% |

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| No. | AGE RANGE | Frequency (n) | Persentage (%) |
|---|---|---|---|
| 3. | 36-45 year | 24 | 24% |
| 4. | 46-55 year | 39 | 39% |
| 5. | 56-65 year | 17 | 17% |
| 6. | >65 year | 16 | 16% |
| | TOTAL | 100 | 100% |

Based on the age of patients who suffer from hypertension with renal failure, the highest paldal age was 46-55 with a total of 39 patients (39%). The more age increases, the less functional the body's organs were, the more it decreases, so that the function of the vessels in the kidneys decreases, the more it loses its elasticity in modulating blood pressure. While specific data includes identification of blood pressure after and before administration of antihypertensive therapy in hypertensive patients with renal failure, the effect of drug use after being given antihypertensive antihypertensive drug therapy in hypertensive patients with renal failure. In this study, the patient's blood pressure was carried out to determine the effect of using the drug given to the patient referring to the hospital formulary.

Patient-specific data characteristics include identification of blood pressure after and before administration of antihypertensive therapy in hypertensive patients with kidney failure and the effect of drug use after being given antihypertensive drug therapy in hypertensive patients with kidney failure.

**Characteristic Of Hypertensive Patients With Kidney Failure Who Use Antihypertensive Drugs Based On Of Blood Pressure After And Before Administration Of Antihypertensive Therapy In Hypertensive Patients With Kidney Failure**

From the above data it can be made a percentage of the blood pressure range in hypertensive patients with kidney failure in the Hospital Outpatient Installation. image of Jember Regency which can be seen in table 3 below:

**Table 3.** The Percentage Of Blood Pressure In Hypertensive Patients With Renal Failure.

| Blood Pressure Range | Frequency (n) | Persentage (%) |
|---|---|---|
| Normal blood pressure (<120 mmHg / <80 mmHg) | 0 | 0% |
| Pre-hypertensive blood pressure (120-139 mmHg / 80-89 mmHg) | 7 | 7% |
| Stage 1 hypertension blood pressure (140-159 mmHg / 90-99 mmHg) | 27 | 27% |
| Stage 2 hypertension blood pressure (>160 mmHg / >100 mmHg) | 66 | 66% |
| Total | 100 | 100% |

Based on the results of a study conducted on hypertensive patients with kidney failure in hospital outpatient care. Jember Regency said (<120 mmHg/<80 mmHg) that was normal blood pressure, not present in the study sample. Blood pressure was said to be

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(120-139 mmHg / 80-89 mmHg) which was pre-hypertension as many as 7 patients (7%). Blood pressure was said to be (140-159 mmHg / 90-99 mmHg) namely stage 1 hypertension in 27 patients (27%). And blood pressure was said to be (> 160 mmHg / > 100 mmHg) namely stage 2 hypertension in 66 patients (66%). Based on the percentage of blood pressure in hypertensive patients with kidney failure in the hospital outpatient installation can be seen in table 5.4 that the most patients were patients with stage 2 hypertension blood pressure (> 160 mmHg / > 100 mmHg) and after administration of antihypertensive drug therapy the patient's blood pressure drops to stage 1 hypertension (140-159 mmHg / 90- 99 mm Hg).

**The Effect Of Using Antihypertensive Drugs In Hypertensive Patients With Kidney Failure**

In this study the effect of the use of antihypertensive drugs in hypertensive patients with kidney failure who had been given antihypertensive drugs in the outpatient hospital, Jember Regency can be seen from blood pressure before giving antihypertensive therapy and after giving antihypertensive therapy. In this study, a measuring scale was used, namely ordinal-ordinal with the form of a comparative hypothesis or a comparison of two interconnected samples, based on a statistics book according to Prof. Dr. Sugiyono on page 134 states that if the examiner tests the comparative hypothesis of two samples that were correlated it was shown using non-parametric statistics with the Wilcoxon Match Pairs Test using SPSS which can be seen in table 4 below:

**Table 4.** Effect Of The Use Of Antihypertensive Drugs On Blood Pressure In Hypertensive Patients With Kidney Failure Using The Wilcoxon Match Pairs Test Using SPSS

Ranks

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| After - Before | Negative Ranks | 52[a] | 62.36 | 3242.50 |
| | Positive Ranks | 45[b] | 33.57 | 1510.50 |
| | Ties | 3[c] | | |
| | Total | 100 | | |

Test Statistics[a]

| | After - Before |
|---|---|
| Z | -3.117[b] |
| Asymp. Sig. (2-tailed) | .002 |

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

From the table above it can be seen that the difference between blood pressure before giving antihypertensive therapy and after giving antihypertensive therapy was 52 on the N value, 62.36 on the Mean Rank value, 3242.50 on the Sum Rank value. This shows a decrease (reduction) from the value before administration of antihypertensive therapy and after administration of antihypertensive therapy. In the table there were 45 positive data (N), which means that the 45 patients experienced an increase in blood pressure from the

blood pressure before and after, the Mean Rank or the average increase was 33.57, while the number of positive ranks or Sum of Ranks was 1510.50 . Ties or the similarity of values before and after here the ties value was 3, so it can be said that there were the same values of 3 between before administration of antihypertensive therapy and after administration of antihypertensive therapy.

## CONCLUSION

Based on the results of the study, it can be concluded that the blood pressure before the use of antihypertensive drugs in hypertensive patients with kidney failure, which was stage one hypertension, blood pressure after the use of antihypertensive drugs in hypertensive patients with kidney failure decreases in stage two hypertension. The reason for not achieving optimal blood pressure was because it was influenced by patient factors such as heredity, smoking habits, obesity, not feeling symptoms or complaints, being lazy to continue taking drugs because of impractical doses, and drug side effects and from the results of statistical analysis using the Wilcoxon Match Pairs Test. get the result that there was an effect of the use of antihypertensive drugs in hypertensive patients with kidney failure at the outpatient installation at hospital, jember regency.

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