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# Investigate the clinical pharmaceutical study of antihypertensive drugs in elderly patients with hypertension

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***Abstract:*** *Objective: To analyze the effect of antihypertensive drugs in the clinical treatment of elderly patients with hypertension. Methods: 312 patients admitted to our hospital from January 2021 to October 2021 were divided into groups according to their clinical treatment methods, and the clinical application of different antihypertensive drugs was studied by statistical analysis of blood pressure changes and drug safety in different groups after treatment. Results: In this study, hypertension treatment drugs mainly included valsartan, amlodipine, metoprolol, benazepril and indapamide tablets, among which the number of patients receiving valsartan was the largest, while the number of patients receiving furoxamil was the least. At the same time, from the treatment effect of drugs, it can be found that the treatment effect of patients is satisfactory, and the data of diastolic blood pressure and systolic blood pressure before and after treatment are significantly different ($P < 0.05$).The adverse reactions of antihypertensive drugs showed that the incidence of adverse reactions was highest in furoxamil, followed by valsartan, and lowest in metoprolol. Conclusions: Antihypertensive drugs can generally achieve satisfactory therapeutic effect in elderly patients with hypertension in clinical practice, but relevant physicians should consider the safety of drugs, rational use of antihypertensive drugs based on patient tolerance can effectively reduce drug adverse reactions, so as to achieve satisfactory therapeutic effect.*

***Keywords:*** *antihypertensive drugs; Senile hypertension; Clinical pharmacy; Adverse reactions*

## 1. Introduction

Objective: Hypertension is a common chronic disease in the elderly, which means that the pressure value of flowing blood on the vascular wall is continuously higher than the normal level, and it is also an important risk factor for inducing cardiovascular and cerebrovascular diseases.This condition with the incidence of hypertension increased year by year, medical research also unceasingly thoroughly, it also puts forward the diversified clinical treatment, antihypertensive effect of different drugs there is obvious difference, so as to ensure that can get satisfied effect in the clinical treatment of high blood pressure, so you need to know the clinical pharmacy features of all kinds of antihypertensive agents, Understanding the therapeutic effect of antihypertensive drugs and common adverse reactions is the key to improve the therapeutic effect of antihypertensive drugs[1].Therefore, in order to further understand the clinical therapeutic value of various antihypertensive drugs, 312 elderly patients with hypertension admitted from January 2021 to October 2021 were selected as the research objects. The detailed information is as follows.

## 2. Data and methods

### *2.1 Clinical Data*

A total of 312 elderly patients with hypertension admitted to our hospital from January 2021 to October 2021 were selected, and the gender distribution included male/female =187/125;The patients were 61-83 years old, with an average age of (72.34±4.76) years.The course of disease ranged from 3 to 12 years, with an average course of (8.43±1.42) years.Patients in this group voluntarily participated in this study and were approved by the hospital ethics Committee.

Inclusion criteria :(1) hypertension confirmed by clinical diagnosis;(2) Complete clinical data;(3) Satisfactory compliance with medication regimen.Exclusion criteria :(1) no follow-up;(2) complicated

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with malignant tumor, abnormal liver and kidney function and other diseases;(3) Abnormal blood pressure caused by other reasons.

### *2.2 Methods*

The clinical treatment data of 312 patients were analyzed, and the names, dosage and adverse reactions of various antihypertensive drugs were mastered.The patients were followed up for a period of one month to understand their diastolic and systolic blood pressure.

### *2.3 Statistical Methods*

SPSS 25.0 software was used to analyze the clinical data of the patients, in which the changes in blood pressure of the patients were tested by T value, and the difference was considered significant when $P < 0.05$.

#### *2.3.1 Use of antihypertensive drugs*

According to the analysis of the use of antihypertensive drugs in this group of patients, it can be found that there are differences in drug treatment programs among different patients, including valsartan, amlodipine, metoprolol, benazepril, indapamide tablet, furoxamil, etc. The use of antihypertensive drugs in patients is shown in Table 1.

*Table 1: Use of antihypertensive drugs (n=312)*

| Drug name | Number of patients | Production units | Approval number |
|---|---|---|---|
| valsartan | 82 (26.29%) | Guilin Huaxin Pharmaceutical Co. LTD | National drug approval word H20080820 |
| amlodipine | 68 (21.79%) | Pfizer Inc | National medicine approval word H10950224 |
| metoprolol | 66 (21.16%) | Suzhou Amitsyn Pharmaceutical Co. LTD | National drug approval word H20034091 |
| That split | 47 (15.06%). | Beijing Novartis Pharmaceutical Co. LTD | National medicine approval word H20000292 |
| Indapamide tablets | 25 (8.01%) | Tianjin Lisheng Pharmaceutical Co., Ltd. | National medicine approval word H10880019 |
| Cefuroxime Sammy | 24 (7.69%). | Shanghai Zhaohui Pharmaceutical Co. LTD | National medicine approval word H31021074 |

#### *2.3.2 Incidence of adverse drug reactions*

According to the rate of adverse drug reactions in patients, the incidence of adverse drug reactions was the highest for furotamil, followed by valsartan, and the lowest for metoprolol, as shown in Table 2.

*Table 2: Adverse drug reactions (n=312)*

| Drug name | Normal cases | Number of adverse reactions |
|---|---|---|
| Valsartan (n=82) | 69 (84.14%) | 13 (15.86%). |
| Amlodipine (n=68) | 58 (86.76%). | 9 (13.24%) |
| Metoprolol (n=66) | 64 (96.97%) | 2 (3.03%). |
| Benazepril (n=47) | 40 (85.11%). | 7 (14.89%) |
| Indapamide tablets (n=25) | 22 (88.0%). | 3 (12.0%) |
| Furosemide (n=24) | 17 (70.83%). | 7 (29.17%) |

#### *2.3.3 Changes in blood pressure*

*Table 3: Blood pressure changes (mmHg)* $\bar{x} \pm s$

| time | Diastolic blood pressure | Systolic blood pressure |
|---|---|---|
| Before treatment (n=312) | 103.52 + / - 7.46 | 158.03 + / - 8.45 |
| After treatment (n=312) | 83.37 + / - 3.42 | 127.42 + / - 7.96 |
| t | 43.370 | 46.575 |
| P | 0.000 | 0.000 |

According to the blood pressure of patients in the two groups, the diastolic blood pressure and

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systolic blood pressure of patients after treatment were significantly lower than before treatment ($P < 0.05$), as shown in Table 3.

## 3. Discussion

Hypertension is a common chronic disease in the elderly. According to the relevant content of the World Health Organization, hypertension in the elderly can be diagnosed as those who are over 60 years old and their blood pressure continues or exceeds the standard blood pressure more than three times in a different day[2].The harm of high blood pressure have gained wide attention of the medical profession, with the increase of age, and the patient body function decline, higher incidence of high blood pressure, has become a not allow to ignore the cardiovascular system diseases, the incidence of the disease increased year by year, falling by immunity and cardiovascular system and heart in load condition for a long time, Eventually, it will cause the injury of target organs such as heart, brain, liver and kidney. With the development of the disease, it may cause a series of cardiovascular diseases such as myocardial infarction and myocardial ischemia, while the unsatisfactory blood pressure control effect will increase the mortality rate.

At present, there is no radical cure for hypertension in the medical field, and lifelong medication after the onset of hypertension has become the key to blood pressure control. Therefore, choosing a reasonable medication regimen is of great significance to promote the recovery of patients. In clinical treatment, drugs should be used to control patients' blood pressure below 140mmHg/90mmHg. After the blood pressure is controlled at this index, the harm of hypertension to patients will be further reduced, and the incidence of stroke, heart failure and other diseases will be reduced, which can effectively reduce mortality and improve prognosis. Therefore, in order to meet this treatment demand, it is necessary to constantly improve and innovate the drug treatment plan. In recent years, the clinical treatment methods for hypertension have been constantly improved, and the emergence of new antihypertensive drugs has fully met the treatment demand. At present, the common antihypertensive drugs in clinic can be divided into α and β blockers, diuretics, angiotensin ii receptor blockers, calcium channel blockers and angiotensin converting enzyme inhibitors, etc., but the clinical therapeutic effects of different drugs are obviously different. Combined with the results of this study, it can be found that although oral antihypertensive drugs are all aimed at lowering blood pressure, different types of antihypertensive drugs have different mechanisms of action and different efficacy for different patients, which lead to differences in clinical treatment of drugs. Therefore, during clinical treatment, targeted treatment plans should be formulated according to the patient's condition. From the point of the mechanism of action of drugs, valsartan belongs to angiotensin II receptor blockers, by pushing angiotensin receptors II close, and not closed AT2 receptors, thus achieve to dilate blood vessels, lower blood pressure, now valsartan has become a common drugs in the clinical treatment of senile hypertension, has the advantages of antihypertensive effect lasting, On the basis of competitive antagonism mechanism, inhibition of AT1 receptor-mediated release of aldehydes by adrenal globular cells can play a satisfactory antihypertensive effect under the influence of selective action, and does not affect the change of heart rate of patients. Amlodipine is a common drug for the treatment of hypertension. It can be used alone or in combination with other antihypertensive drugs. In terms of pharmacological effects, amlodipine has the function of dilating peripheral arterioles and reducing peripheral resistance, thus reducing the normal oxygen demand of myocardium. At the same time, after continuous dilation of coronary arteries and small coronary arteries, amlodipine can maintain normal myocardial oxygen supply, thus effectively improving symptoms such as abnormal blood pressure; Amlodipine is enhanced to improve human body circulation of common drugs, can be solved because of various causes of variability systolic and diastolic blood pressure variability for the patients with cardiovascular diseases, and an increased level of systolic blood pressure variability prove that a patient with severe perfusion level dysfunction problems, the occurrence of this disease exacerbate vascular endothelial damage, Moreover, amlodipine can further reduce the systolic blood pressure variability and diastolic blood pressure variability levels of patients and achieve clinical treatment goals. Metoprolol has satisfactory selectivity for beta 1 receptor blocking effect, and for beta 2 receptor blocking effect is not obvious, from the point of pharmacological effects, metoprolol belongs to the beta 1 receptor blockers, in selective blocking can inhibit the heart contraction force and reduce the self-discipline and slow atrioventricular conduction time, effects on vascular smooth muscle contraction effect is not obvious, and as an important plan a safe, This treatment method can fully meet the treatment needs of patients with different types of hypertension[3].Benazepril, as a prerequisite drug, can be quickly absorbed after entering the patient's body, and the substance generated after liver metabolism has the effect of inhibiting angiotensin, so it can effectively relieve the clinical symptoms

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of patients with hypertension. Combined with the analysis of the pharmacological action of this drug by relevant scholars, it can be found that benazepril can be generated after the hydrolysis of benazepril in liver, which belongs to angiotensin-converting enzyme and does not contain sulfhydryl substances, thus effectively inhibiting angiotensin-converting enzyme, reducing aldosterone secretion and improving peripheral vascular resistance. The substance also reduces peptide degradation, thereby improving vascular resistance, which in turn improves blood pressure[4].Indapamide tablet as a thiazide like diuretic, with good calcium antagonism and diuretic function, is a long-term antihypertensive drug, patients can relax vascular smooth muscle after medication, improve the problem of high peripheral vascular resistance, resulting in stable antihypertensive effect, and basically will not affect the heart rate and cardiac output. Furosemide is a powerful diuretic, which has the advantages of short acting time and strong effect. It can reduce patients' blood pressure in a shorter time after medication, and achieve the purpose of clinical treatment.

In the clinical treatment of elderly patients with high blood pressure at the same time, to achieve satisfactory therapeutic effect, you need to follow the patient's tolerance, not only to ensure that the short-term curative effect is satisfied, also want to consider in the long-term treatment to the patients with particularity and reduce the incidence of adverse drug reactions as far as possible, in order to improve patients compliance of medication. According to different antihypertensive drugs in this paper, the clinical research can be found that in patients with different drug therapy in the incidence of adverse reactions resulting from data differences, among them the occurring rate of adverse reaction of Sammy is highest, at 29.17%, followed by valsartan, bei that split, amlodipine, and indapamide tablet and a lower incidence of drug adverse reactions, such as metoprolol It suggests that there are differences in the safety of different medication regimens. And the safety of different antihypertensive drugs exist obvious differences between data, this may and don't use antihypertensive drugs medicine generation of correlation, the statistical results of this paper shows the highest drug safety of metoprolol, medicine generation study found that patients with drug absorption after oral metoprolol effect is more than 90%, and the bioavailability of about 50%, has the good lipotropy, Excretion from the kidney in the form of metabolites, small harm to the human body; Indapamide tablet as a new antihypertensive drug, patients after oral medication basically will not affect the heart rate, cardiac output, and in the long-term medication after the glomerular filtration rate and renal blood flow of small impact, can ensure the medication compliance of patients, to avoid adverse drug reactions. According to the pharmacokinetic of indapamide tablets, the results can be found indapamide tablets after oral drug absorption effect is good, patients diet will not affect the normal absorption of indapamide tablets, drug bioavailability of over 90%, several times after the treatment, can maintain a good antihypertensive effect in 8 and 12 weeks, helps to reduce the dose, At the same time, about 70% of the metabolites were excreted by kidney, and the rest were excreted by gastrointestinal tract. The safety of the drug was satisfactory. Therefore, combined with the data of this study, it can be found that among the 6 antihypertensive drugs selected in this study, the safety of indapamide tablet and metoprolol is satisfactory, the pharmacokinetics of the two drugs are good, the bioavailability is high, and the drugs will not accumulate in human body basically, ensuring the safety of drug treatment. In contrast, valsartan and amlodipine have higher rates of adverse drug reactions, among which the bioavailability of valsartan is 25%-30%, mainly through the biliary tract and kidney exclusion. However, from the perspective of clinical rational drug use, valsartan and other drugs have the advantage of quick effect and can reduce blood pressure in a short time after patients adhere to medication. Therefore, valsartan is a reasonable medication regimen for patients with urgent antihypertensive needs in clinical practice.

At the same time, it should be noted in clinical treatment that no matter which antihypertensive drugs are used, the dosage of drugs should be strictly controlled on the basis of patient tolerance, so as to not only achieve satisfactory antihypertensive effects, but also pay attention to the long-term efficacy of antihypertensive drugs to reduce the incidence of adverse reactions. If the symptoms of patients do not improve significantly after the use of small doses of drugs, it can be considered to increase the dosage of drugs to effectively control blood pressure. In this study, it was found that the diastolic blood pressure and systolic blood pressure of patients in this group were (83.37±3.42) mmHg and (127.42±7.96) mmHg respectively under the treatment intervention of different antihypertensive drugs. Compared with before treatment, the data between the groups were significantly different ($P < 0.05$), which proved that antihypertensive drugs had a satisfactory effect in improving the clinical symptoms of patients. However, the drug safety of patients is also an issue that cannot be ignored. So in order to obtain satisfactory clinical effect, clinical medicine intervention in patients with TCM doctor should understand the mechanism of action of different antihypertensive drugs, according to the reason of disease of patients' course, several aspects such as establishing scientific and reasonable regimen, and pay close attention to the clinical curative effect of antihypertensive drugs for a long time, so you can

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get a more satisfactory curative effect.

## 4. Conclusions

To sum up, the use of different drugs treatment of senile hypertension has the feasibility, each type of antihypertensive drugs have satisfactory antihypertensive effect, but given the patients medication safety requirements etc., should be in the right condition on the basis of patient evaluation as far as possible choose indapamide pieces, metoprolol and satisfactory drug safety, and strengthen the response to all kinds of adverse drug reactions, Take the initiative to prevent adverse reactions, test patients' blood pressure indicators, and adjust medication regimen as soon as possible for patients with unsatisfactory antihypertensive effect, or promote the improvement of clinical symptoms through drug combination.

## References

*[1] Wu Xijun, WANG Zhimei. Clinical pharmacologic analysis of antihypertensive drugs in elderly patients with hypertension [J]. Chinese Journal of Practical Medicine, 2017(25):183-185.*
*[2] Yue HJ. Effects of different antihypertensive drugs combined on circadian rhythm of blood pressure and related serum biochemical parameters in elderly patients with hypertension [J]. Gansu Medicine, 2017(08):718-721.*
*[3] Hong R L. Effect of Xiaoyao Pill combined with antihypertensive drugs on blood pressure level in elderly patients with hypertension and depression [J]. Prevention and Treatment of Cardiovascular Diseases, 2015(01):34-36.*