



STUDY OF REDUCTION OF COMPLICATION RISK IN ARTERIAL HYPERTENSION USING COMBINATION THERAPY

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Abstract: Arterial hypertension is one of the most significant global health problems and a leading risk factor for cardiovascular diseases. Modern international guidelines recommend combination therapy as first-line treatment for most patients with arterial hypertension. The aim of this study was to evaluate the effectiveness of combination therapy in reducing complications in patients with arterial hypertension. The results showed that combination therapy significantly improves blood pressure control, reduces cardiovascular complications, and prevents target organ damage.

Keywords: arterial hypertension, combination therapy, cardiovascular complications, antihypertensive therapy, target organ damage

INTRODUCTION

Arterial hypertension remains one of the most common cardiovascular diseases worldwide and represents a major public health concern. According to the World Health Organization (WHO), approximately 1.28 billion adults aged 30–79 years suffer from hypertension globally. Nearly half of these patients do not achieve adequate blood pressure control.

Arterial hypertension is a major risk factor for cardiovascular diseases, including stroke, myocardial infarction, heart failure, and chronic kidney disease. Long-term elevation of blood pressure leads to structural and functional damage to target organs such as the heart, brain, kidneys, and blood vessels.

Recent international guidelines emphasize early initiation of combination therapy in hypertension management. The European Society of Cardiology and the European Society of Hypertension recommend starting treatment with combination therapy in most patients in order to achieve faster and more effective blood pressure control.

Materials and Methods

This study included 120 patients diagnosed with arterial hypertension who were treated in the cardiology department between 2023 and 2024. All patients were divided into two groups depending on the treatment strategy. The first group consisted of 60 patients who received antihypertensive monotherapy. The second group consisted of 60 patients who received combination antihypertensive therapy.



The age of patients ranged from 35 to 75 years. The mean age of participants was 56.4 ± 8.3 years. Among the participants, 62 were men and 58 were women. All patients had stage I–III arterial hypertension.

Patients with secondary hypertension, severe heart failure, recent myocardial infarction, recent stroke, and severe renal failure were excluded from the study.

All patients underwent clinical and laboratory examination. Blood pressure measurements were taken regularly during follow-up. Electrocardiography and echocardiography were performed to evaluate cardiac function. Laboratory tests included lipid profile, blood glucose, and serum creatinine levels.

Patients in the combination therapy group received different combinations of antihypertensive drugs. These included ACE inhibitors combined with calcium channel blockers, angiotensin receptor blockers combined with diuretics, and ACE inhibitors combined with diuretics.

Patients were followed for six months. Blood pressure levels and cardiovascular complications such as stroke, myocardial infarction, heart failure, and hypertensive crisis were recorded throughout the study period.

Statistical analysis was performed using SPSS software. The results were considered statistically significant when p-value was less than 0.05.

Results

After six months of follow-up, patients receiving combination therapy demonstrated better blood pressure control compared to those receiving monotherapy. Blood pressure was controlled in 82% of patients receiving combination therapy, while only 58% of patients receiving monotherapy achieved target blood pressure levels.

Cardiovascular complications were observed more frequently in patients receiving monotherapy. Fourteen patients in the monotherapy group developed cardiovascular complications, whereas only six patients in the combination therapy group experienced complications.

Stroke occurred in five patients in the monotherapy group and two patients in the combination therapy group. Myocardial infarction was observed in four patients receiving monotherapy and in one patient receiving combination therapy. Heart failure progression was observed in five patients in the monotherapy group and in three patients in the combination therapy group.

These findings demonstrate that combination therapy significantly reduces the risk of cardiovascular complications in patients with arterial hypertension.

Discussion

Combination therapy significantly improved blood pressure control and reduced cardiovascular complications. These findings are consistent with previous international studies such as ACCOMPLISH, ASCOT-BPLA, and SPRINT trials.

Combination therapy acts through multiple mechanisms involved in hypertension pathogenesis. It allows the use of lower drug doses, which reduces adverse effects and improves patient adherence. Combination therapy also prevents target organ damage and improves cardiovascular outcomes.



Combination therapy is particularly beneficial in high-risk patients, including elderly individuals, patients with diabetes mellitus, and patients with cardiovascular disease.

Conclusion

Combination therapy significantly reduces cardiovascular complications in patients with arterial hypertension.

It improves blood pressure control, prevents target organ damage, and reduces mortality risk.

Combination therapy should be considered as first-line treatment in most patients with arterial hypertension.

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