



# Effect of Valsartan/Amlodipine Combination Therapy Compared to Valsartan Alone on Left Ventricular Diastolic Dysfunction in Patients with Hypertension

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## ABSTRACT

**Introduction:** Left ventricular diastolic dysfunction is a decisive predictive factor for cardiovascular events and heart failure. Blood pressure is known as the most critical risk factor for this disorder. In this study, we attempted to compare left ventricular diastolic function with valsartan/amlodipine combined drug use with valsartan monotherapy.

**Methods and Materials:** In this randomized and double-blind clinical trial, 122 new high blood pressure cases in the Heart and Vascular Clinic of Bou Alisina Hospital in Qazvin between 2020 and 2022 were examined by echocardiography. If the patients met the criteria for left ventricular diastolic dysfunction, they were randomly assigned to one of two treatment groups, where they received a combination of drugs. Valsartan/amlodipine or monotherapy with valsartan was placed, and after six months of treatment, left ventricular diastolic function parameters were evaluated and compared.

**Results:** Fifty-two patients from the valsartan group and 51 from the valsartan/amlodipine group completed the study. In both groups, systolic and diastolic blood pressure was significantly reduced ( $p = 0.001$ ); however, the reductions were statistically the same (systolic:  $p = 0.204$  and diastolic:  $p = 0.405$ ). The  $E/\epsilon$  ratio parameter in both groups decreased from 10.8 to 8.9 ( $p = 0.001$ ), but this decrease was not statistically significant in the two groups ( $p = 0.997$ ). Although there was a decrease in transient recovery voltage and an increase in left atrial volume index (LAVI), these changes were not statistically significant. The parameter of in vitro release testing was decreased in both groups. Still, the number of changes in the two groups was similar, and there was no statistically significant difference. In correlation analysis, changes in systolic blood pressure were not related to changes in E and  $E/\epsilon$  ratio and LAVI. Patients tolerated both drug treatments well.

**Conclusion and Discussion:** According to the study, the diastolic function of controlled hypertensive patients in the angiotensin receptor blocker (ARB) + calcium channel blocker (CCB) combination treatment group improved. However, the results showed that ARB + CCB combination therapy was not preferred to the ARB single therapy, and only the decrease in blood pressure parameter was influential in the function process.

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