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Research Article

Therapeutic Effect of Nifedipine Combined with Enalapril on Elderly Patients with Coronary Heart Disease Complicated with Hypertension

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Abstract: The objective of this study was to analyze the efficacy of combined drug therapy for elderly patients with coronary heart disease and hypertension. 66 elderly patients with coronary heart disease and hypertension were enrolled from December 2016 to November 2017. They were randomly divided into two groups, 33 patients in each group. Patients in the experimental group received nifedipine. In combination with enalapril, patients enrolled in the control group received nifedipine monotherapy. Compared with the control group, the total effective rate, serum nitric oxide (NO) after treatment, C-reactive protein (CRP) after treatment, homocysteine (HCY) after treatment, and blood pressure after treatment were significantly improved ($P < 0.05$). There were no significant differences in serum NO, pre-treatment CRP, pre-treatment HCY, pre-treatment blood pressure, and adverse reactions during treatment between the two groups ($P > 0.05$). The elderly patients with coronary heart disease and hypertension are treated with nifedipine and enalapril.

Keywords: *old age; coronary heart disease; hypertension; nifedipine; enalapril*

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0 Introduction

The incidence of coronary heart disease complicated with hypertension is higher in the clinic, and the middle-aged and elderly patients are more common, which may have a serious impact on the quality of life of patients. According to the analysis, the main risk factor for coronary heart disease is hypertension. The patients with long-term high blood pressure can aggravate the patient's condition[1], and the treatment is significantly challenging. Therefore, the combination therapy is proposed clinically to enhance efficiency of the treatment. This group of subjects is to analyze the efficacy of combined drug therapy for elderly patients with coronary heart disease and hypertension. 66 patients were enrolled and the report is as follows.

1 Materials and Methods

1.1 Information

A total of 66 patients were randomly selected from elderly patients with coronary heart disease and hypertension who were treated in our hospital from December 2016 to November 2017. They were randomized by double-blind method. The ratio of male to female in the 33 patients in the experimental group was 20:13. The age ranged from 52 to 83 years old, with a median age of 65.3 years, a course of 2–11 years, and a median duration of 5.2 years; 33 patients in the control group had a male-to-female ratio of 21:12, aged 53–82 years, with a median age of 65.5 years. The course of disease was 3–10 years and the median duration was 5.3 years. The data of gender, age, and condition of the two groups were compared and analyzed, and the difference was not significant ($P > 0.05$).

1.2 Method

Two groups of patients were stopped taking antihypertensive drugs 1 week before treatment.

Patients in the control group were treated with nifedipine monotherapy: 20 mg per dose, 2 times a day, orally, for 2 months.

Patients in the experimental group were treated with nifedipine and enalapril. On the basis of the treatment of the control group, enalapril was orally administered, the initial dose was 5 mg, and the drug was administered twice a day. After 2 weeks, enalapril was administered. The dose was increased to 10 mg, which was administered twice a day for 2 months.

1.3 Effect analysis[2]

After treatment, the symptoms disappeared, the electrocardiogram returned to normal, the diastolic blood pressure decreased to >10 mmHg and returned to normal, or the diastolic blood pressure decreased to >20 mmHg but did not return to normal, which was markedly effective; the symptoms improved significantly, the electrocardiogram returned to normal, and the diastolic blood pressure decreased <10 mmHg and returned to normal or the diastolic blood pressure drops 10–19 mmHg but does not return to normal, it is effective; if it does not meet the above criteria, it is clustered as not effective. The total efficiency is the sum of efficiency nifedipine combined with enalapril.

1.4 Statistical analysis

The data were analyzed using the SPSS 19.0 software, including *t*-test and χ^2 test, which were used for the calculation of measurement data and count data, respectively. The difference on the data was statistically significant, $P < 0.05$.

2 Results

Compared with the control group, the total effective rate, serum nitric oxide (NO) after treatment, C-reactive protein (CRP) after treatment, homocysteine (HCY) after treatment, and blood pressure after treatment were significantly improved ($P < 0.05$). Comparing the two groups of patients before treatment, serum NO, before treatment CRP, pre-treatment HCY, pre-treatment blood pressure, and adverse reactions during treatment (face flushing, headache, fatigue, severe arrhythmia, edema, and diarrhea), the difference was not significant ($P > 0.05$) [Tables 1-3].

3 Discussion

Coronary heart disease is an ischemic heart disease, which can be manifested as heart failure, angina pectoris, myocardial infarction, and common angina pectoris. Elderly patients with coronary heart disease and hypertension are clinically common in patients with cardiovascular and cerebrovascular diseases. Mechanism of action: Patients with hypertension can increase coronary perfusion pressure, which can damage the coronary intima and accelerate the patient's atherosclerosis. The formation of atherosclerotic plaque, obstructing coronary and artery vasculature[3], can lead to vascular remodeling, thickening of the vessel wall, and narrowing of the vascular lumen, which may affect the blood supply of the patient's own myocardium, resulting in myocardial hypoxia, ischemia, and necrosis, respectively, eventually lead to coronary heart disease. Therefore, how to effectively treat elderly patients with coronary heart disease complicated with hypertension was discussed and analyzed clinically. According to the analysis, the single-drug treatment for patients with this disease is not effective enough. It should be treated with a combination of drugs to play a synergistic effect, to effectively improve the efficacy of the drug.

At present, the clinical use of nifedipine and enalapril in the treatment of elderly patients with coronary heart disease and hypertension, the curative effect is significant. Nifedipine can inhibit the calcium ion influx of smooth muscle cell membrane and myocardial cell membrane, which can promote the effective reduction of excitability of smooth muscle cells and cardiomyocytes, and significantly reduce the myocardial contractility of patients, which can promote myocardial oxygen consumption. Significantly decreased excitability of smooth muscle furthermore promoting the effective increase of myocardial ischemic tolerance, protecting the patient's myocardial cell damage[4], and promoting the patient's angina and other symptoms significantly reduced. In addition, nifedipine can relax the vascular smooth muscle of patients, can relax the blood vessels of patients, and can promote the effective increase of blood flow, and the antihypertensive effect is ideal. Overall, relaxing vascular smooth muscle will effectively prevent patients from forming atherosclerotic plaque. The use of nifedipine sustained-release preparation for the treatment of patients with this disease, quick effect, sustained and stable drug effect, significantly resists coronary heart disease, and antihypertensive effect. Enalapril can promote the effective reduction of angiotensin II in patients, which can relax the blood vessels of patients, and has a good antihypertensive

Table 1. Comparison of the efficacy of the two groups of patients

Group	Number of cases	Significant effect	Effective	Invalid	Total efficiency
Test group	33	21	11	1	96.96%
Control group	33	12	14	7	78.78%
χ^2					5.1207
P					<0.05

Table 2. Comparison of blood pressure and adverse reactions during treatment before and after treatment in two groups of patients

Group	Number of cases	DBP (mmHg)		SBP (mmHg)		Adverse reactions (%)
		Before treatment	After treatment	Before treatment	After treatment	
Test group	33	102.88±11.06	83.628±4.11	146.88±11.02	129.55±2.58	2 (6.06)
Control group	33	103.52±10.83	91.332±3.33	147.48±11.53	134.72±2.22	3 (9.09)
t/x^2		0.2375	8.3729	0.2161	8.7257	0.2164
P		>0.05	<0.05	>0.05	<0.05	>0.05

DBP: Diastolic blood pressure, SBP: Systolic blood pressure

Table 3. Comparison of serum NO, CRP, and HCY before and after treatment in two groups of patients

Group	Number of cases	NO (μmol/L)		CRP (mg/L)		HCY (μmol/L)	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Test group	33	47.16±8.33	61.84±5.22	10.77±2.17	3.887±1.28	22.66±6.74	10.52±6.08
Control group	33	47.92±8.93	53.66±1.35	10.66±2.04	6.346±1.15	21.92±6.08	15.44±1.99
T		0.3575	8.7152	0.2121	8.2125	0.4683	8.3261
P		>0.05	<0.05	>0.05	<0.05	>0.05	<0.05

NO: Nitric oxide, CRP: C-reactive protein, HCY: Homocysteine

effect and rapid onset[5]. The effect is stable and long lasting. Furthermore, it will not affect the myocardial contractility of patients, and the effect of diastolic blood vessels is significant. It can promote the effective reduction of cardiac load in patients. The combination of the above two drugs, synergistic effect, can promote the effective reduction of symptoms, can enhance the patient's antihypertensive effect, and can prevent the onset of coronary heart disease.

In the diagnosis and treatment of elderly patients with coronary heart disease and hypertension, serum NO, CRP, and HCY levels play an important role. NO is a cell signaling molecule[6], which can regulate the cardiovascular and cerebrovascular system. NO is freely released into the body in the form of free radicals. It plays a more significant role in vascular smooth muscle relaxation. It can dilate blood vessels and keep blood circulation smooth. Ideally, it can effectively prevent atherosclerosis, inhibit the aggregation of platelet adhesion agents, and further prevent vascular endothelial cells from leukocyte injury[7]. Clinical practice has shown that NO can effectively prevent the formation of atherosclerotic plaque. CRP is a reactive protein, which is related to inflammation. It can accurately reflect the degree of inflammatory response in patients, which indirectly reflects the degree of hypertension and atherosclerosis. The increase of CRP level can stimulate endothelial cells and lead to endothelial dysfunction. It induces inflammation of endothelial cells and activates macrophages, thereby damaging the inner wall of blood vessels. In addition, higher CRP levels can inhibit endothelial NO synthase, which can inhibit NO synthesis and reduce release *in vivo*, and further damage the blood vessels. HCY is an amino acid, which can induce hypertension and coronary heart disease, and promote the formation of atherosclerosis[8]. The mechanism of analysis, HCY can damage the inner wall of blood vessels, inhibit the production of NO synthase, and promote the reduction of NO synthesis. It can promote platelet aggregation and adhesion, accelerate thrombus formation, and lead to vascular occlusion in patients. In addition, HCY

can stimulate vascular smooth muscle and induce hyperplasia, which can induce vascular remodeling, which can distort the sugar, fat, and protein metabolism of patients, and can cause lipid deposition in blood vessels and oxidize low-density lipoprotein, which can lead to patients. A stenosis occurs. Based on this, the effective regulation of serum NO, CRP, and HCY in elderly patients with coronary heart disease and hypertension can effectively alleviate the clinical symptoms of patients and improve the efficacy of patients.

The results of this group: The total effective rate of the experimental group, serum NO after treatment, CRP after treatment, HCY after treatment, and blood pressure after treatment was significantly improved. The results showed that the combination of nifedipine and enalapril was more feasible in the treatment of elderly patients with coronary heart disease and hypertension.

4 Conclusion

The combination of nifedipine and enalapril is effective in the treatment of elderly patients with coronary heart disease and hypertension, which can significantly reduce the blood pressure level of patients and can significantly improve the serum NO, CRP, and HCY and is worthy of clinical recommendation.

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