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The Value of Sacubitril and Valsartan in Adjuvant Treatment of Coronary Heart Disease and Heart Failure

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Abstract: **Objective:** To analyze the intervention effect of adjuvant sacubitril-valsartan therapy in patients with coronary heart disease and heart failure. **Methods:** A total of 89 patients with coronary heart disease and heart failure who were treated in our hospital in the past 3 years (January 2019-February 2022) were selected, and the clinical data were reviewed. 45 patients treated with conventional treatment + sacubitril and valsartan were used as the observation group, and the application values of the two groups were compared. Results: The improvement of various cardiac function levels in the observation group was better, the 6min walking distance was longer, and the adverse reaction rate was lower, and the difference was statistically significant compared with the control group ($P<0.05$). **Conclusion:** Sacubitril-valsartan has good effect in adjuvant treatment of coronary heart disease and heart failure, can effectively improve its cardiac function, improve exercise endurance, and has few adverse reactions, high safety, and definite clinical application value.

Keywords: Coronary Heart Disease; Heart Failure; Sacubitril-Valsartan; Benazepril; Cardiac Function; 6min Walking Distance; Adverse Reactions; Efficacy

Introduction

Coronary heart disease is caused by coronary sclerosis, and clinically, patients are prone to angina pectoris, palpitation, shortness of breath, and chest tightness. If the disease is not controlled, the disease may continue to develop may lead to heart failure. Heart failure manifests as lower extremity edema, dyspnea, severe inability to lie supine, and some patients may cause cardiogenic asthma, resulting in water and electrolyte balance disorders, which can be life-threatening in severe cases. Therefore, patients with coronary heart disease should be treated as soon as possible to avoid the occurrence of heart failure or other more serious diseases. Treatment of heart failure is generally drug therapy. Sacubitril-valsartan is a class of angiotensin receptor/enkephalinase inhibitors. Experimental studies have shown that sacubitril and valsartan can reduce the re-hospitalization rate and mortality of patients with heart failure more than ACE inhibitors, and is currently the first-line drug recommended by domestic and foreign guidelines for patients with heart failure.[1] Therefore, this paper aims to explore the clinical value of sacubitril and valsartan in the adjuvant treatment of coronary heart disease and heart failure. The reports are as follows:

1. Research materials and methods

1.1 Research materials

The clinical data of patients with coronary heart disease and heart failure admitted to our hospital in the past 3 years were selected. Among them, there were 44 cases in the control group, 24 males and 20 females; the age was 45-84 years (mean 64.54±3.51 years); the course of disease was 1-5 years (mean 3.08±0.07 years). There were 45 cases in the observation group, including 29 males and 16 females, aged 47-86 years (mean 66.54±4.16 years), and disease duration of 1-5 years (mean 3.14±0.10d). The above case data were well balanced ($P>0.05$) and comparable.

1.2 Methods

All cases were treated with conventional treatment including diuretics, statins, aldosterone receptor antagonists, digitalis, beta-blockers, etc. On this basis, the control group was given benazepril treatment (Guangzhou Nanxin Pharmaceutical Co., Ltd., Chinese medicine Zhunzi H20090004), the recommended dose is 10/12.5mg, once a day.

The observation group was additionally treated with sacubitril and valsartan on the basis of conventional treatment (Beijing Novartis Pharmaceuticals Co., Ltd. (individual packaging), approved by Chinese medicine J20190002). For those with systolic blood pressure ≤100 mmHg, sacubitril and valsartan sodium 50 mg/time, 2 times/d; for those with systolic blood pressure >100 mmHg, 100 mg/time, 2 times/d. And according to the patient's tolerance, the dose is increased to 200 mg/time every 7-14 days, 2 times/day.

Both groups continued treatment for 1 month.

1.3 Observation index and judgment criteria

The cardiac function level[2] and 6min walking distance of the two groups of patients were measured, and the occurrence of adverse reactions in the two groups was also counted.

1.4 Statistical methods

The data were analyzed with statistical software (SPSS 23.0 version).

2. Result

2.1 Comparison of cardiac function levels between the two groups of patients

It can be seen from Table 1 that the improvement of cardiac function in the observation group was better than that in the control group (P<0.05).

Table 1 Comparison of cardiac function levels in two groups of patients [n, (%)]

Groups	Number of cases	Before treatment			After treatment		
		LVEF（%）	LVEDD（mm）	NT-proBNP（pg/ml）	LVEF（%）	LVEDD（mm）	NT-proBNP（pg/ml）
Observation group	45	35.17±6.42	68.75±4.05	2071.32±249.36	48.36±8.15	59.37±3.98	865.14±176.35
Control group	44	34.76±6.38	68.35±3.98	2067.14±251.45	43.16±7.68	61.96±3.65	993.45±167.15
t	-	0.302	0.470	0.079	3.096	3.198	3.521
P	-	0.763	0.640	0.937	0.003	0.002	0.001

2.2 Comparison of 6min walking distance between the two groups of patients

It can be seen from Table 2 that the 6min walking distance of the observation group was significantly better than that of the control group (P<0.05).

Table 2 Comparison of 6min walking distance between the two groups of patients ($\bar{x} \pm s$), m

Groups	Number of cases	Before treatment	After treatment
Observation group	45	289.37±89.38	416.35±91.11
Control group	44	293.46±87.38	369.16±86.38
t	-	0.218	2.506
P	-	0.828	0.014

2.3 Comparison of adverse reaction rates between the two groups of patients

It can be seen from Table 3 that the adverse reaction rate of patients in the observation group was significantly lower than that in the control group (P<0.05).

Table 3 Comparison of adverse reaction rates between the two groups of patients [n, (%)]

Groups	Number of cases	Low blood pressure	Mild impairment of renal function	Angioedema	Adverse reaction rate
Observation group	45	1	1	0	4.44
Control group	44	3	4	2	20.45
χ^2	-	-	-	-	5.740
P	-	-	-	-	0.017

3. Discussion

Coronary heart disease is a kind of myocardial ischemia and hypoxia caused by organic stenosis or lumen blockage of coronary artery, also known as ischemic heart disease[3]. Heart failure is one of the common complications of coronary heart disease, most of which occur in the late stage of coronary heart disease. Clinically, most of the patients will be accompanied by chest tightness, asthma, and even breathing difficulties in the supine position. In severe cases, the patient will die. Although the current clinical combined intervention and drug treatment have made progress, some patients still have different degrees of cardiac dysfunction as the disease progresses, eventually leading to chronic heart failure. Therefore, it is of great significance to find a more effective treatment method.

The routine clinical treatment of this disease is to improve cardiac function first. Generally, digitalis is selected to enhance myocardial contractility, diuretics and vasodilators are selected to reduce the burden on the heart, improve cardiac function, and relieve the symptoms of heart failure. The second is to remove the incentives, such as infection in the body, especially lung infection, endocarditis, and the need to actively control the infection. Then there is treatment for the cause. For patients with coronary heart disease and heart failure, the addition of benazepril on the basis of conventional treatment methods can not only play a role in lowering blood pressure, but also effectively protect myocardial cells, which has a good effect on coronary heart disease and heart failure. But the actual treatment of heart failure, can not rely solely on a certain drug. Sacubitril-valsartan is mainly used in clinical practice to prevent the progression of heart failure. It can replace angiotensin-converting enzyme inhibitor (ACEI) or angiotensin II receptor blocker (ARB) in combination with other heart failure treatment drugs[4]. This drug can further reduce cardiovascular mortality and the risk of heart failure hospitalization, reverse left ventricular remodeling and left ventricular hypertrophy, and play the role of sodium excretion, drainage, and

vasodilator[5]. At the same time, it can also delay the progression of heart failure, improve the quality of life of patients, improve their long-term prognosis, and improve the quality of life. The results of this study showed that the improvement of cardiac function in the observation group was good, the 6min walking distance was longer, and the adverse reactions were less ($P<0.05$), which fully confirmed the high clinical application value of sacubitril and valsartan improve cardiac function and high safety. In-depth analysis of sacubitril and valsartan can be rapidly absorbed after oral administration, decomposed into sacubitril and valsartan, and give full play to its efficacy; each component of sacubitril and valsartan is highly bound to plasma proteins. The tissue distribution rate is high; most of sacubitril is excreted in urine, which brings benefits to patients with heart failure and has good safety.

In conclusion, sacubitril-valsartan has significant curative effect in the treatment of patients with coronary heart disease and heart failure, which can well improve their cardiac function and reduce adverse reactions, which is an effective and safe treatment.

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