Clinical efficacy and ultrasound inspection of the treatment of hypertensive heart patients with Valsartan combined with hydrochlorothiazide

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Abstract: To observe and analyze the clinical efficacy and ultrasound detection results of treatment of hypertensive patients with heart disease with valsartan combined with hydrochlorothiazide. The 160 hypertensive patients with heart disease who were treated in our hospital were selected as study subjects and randomly divided into study group and reference group, each with 80 patients. Where, the reference group was solely treated with valsartan, while the study group received hydrochlorothiazide treatment on this basis. The therapeutic effects of the two groups were observed and analyzed. Comparison of the overall treatment efficacy and incidence of adverse reactions between the two groups showed that the study group had more significant advantages than the reference group, $P<0.05$; in comparison of systolic blood pressure and diastolic blood pressure after treatment between the two groups, the study group had higher improvement degree than the reference group, $P<0.05$; ultrasonic ECG inspection showed that the study group was superior to the reference group with better recovery in indexes including left ventricular mass index, left ventricular posterior wall thickness, left ventricular ejection fraction, $P<0.05$. The combination of Valsartan and hydrochlorothiazide for hypertensive patients with heart disease can significantly improve the treatment effect and significantly reduce the incidence of adverse reactions. Therefore, it is worthy of popularization and application.

Keywords: Valsartan, hydrochlorothiazide, hypertension with heart disease, clinical efficacy, ultrasound inspection result.

INTRODUCTION

In recent years, the rapid development of the social economy has enabled people to have a higher standard of living, and has also brought changes in lifestyle and dietary structure, leading to an upward trend in the incidence of hypertensive heart disease. Moreover, this disease gradually occurs in younger generations. The disease is difficult to treat and can cause serious diseases such as coronary heart disease, heart failure and stroke, causing serious impact on the normal life of patients (Duan 2016; Sun 2017; Maryam *et al*., 2017). Therefore, active and effective programs should be adopted to control the progress of this disease, reduce patient mortality and disability.

Hypertension will lead to changes in heart structure and function due to poor control over a long period of time, that is, hypertension with heart disease. Mainly including early decreased left ventricular diastolic function (fig. 1), left ventricular hypertrophy, it further develops into decreased myocardial systolic function and heart failure. Active and effective antihypertension is the key to the treatment of this disease. At present, the main approach for the treatment of hypertension with heart disease is drug treatment and good results can be achieved generally (Tao and Liao 2016, Mushtaq *et al*., 2017). This study is to observe and explore the clinical efficacy and ultrasound inspection result of treatment of hypertensive patients with heart disease with Valsartan combined with hydrochlorothiazide.

MATERIALS AND METHODS

The 180 hypertensive patients with heart disease who were treated in our hospital were selected for the study, and the time range was from June 2015 to December 2017. This paper has a rigorous structure, and the conclusion has been approved by relevant ethics and relevant departments. All the cases were definitely diagnosed according to the contents of "Guide to Hypertension Prevention and Treatment of Cardiovascular Diseases" (Vincent *et al*., 2015, Naeem *et al.*, 2017). The patients' inclusion and exclusion criteria are: meeting the diagnostic criteria for enrollment with signed informed consent; with no other internal medicine diseases or malignant tumors, cardiopulmonary dysfunction; no coronary heart disease or myocarditis-induced heart failure; no allergies to the drug in this study; no mental disorders.

The patients were randomly divided into study groups and

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reference groups with equal number of cases. Where, the study group had 43 males and 37 females, ranging in age from 45 to 75 years, with an average of (62.5±3.0) years. The disease duration ranged from 2 to 12 years, with an average of (4.2±0.5) years. The reference group had 42 males and 38 females, ranging in age from 46 to 73 years, with an average of (63.2±3.5) years. The disease duration ranged from 1 to 10 years, with an average of (3.2±0.7) years. Comparison of the relevant data of the two groups showed comparability, P>0.05.

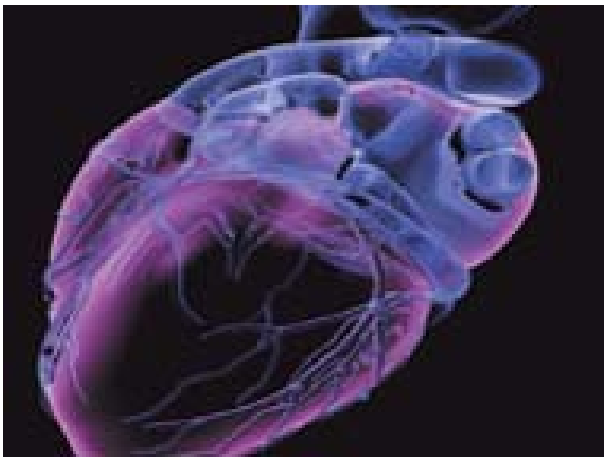

Fig. 1: Decreased left ventricular diastolic function.

(1) Treatment Methods for the Reference Group. The reference group was solely treated with valsartan. The patients were instructed to take valsartan (manufacturer: Zhejiang Tianyu Pharmaceutical Co., Ltd., SFDA approval No.: H20103715), and the first dose was 50 mg per day. The dose was scientifically adjusted according to patients' condition, and can be increased to 100mg per day if the effect is not significant.

(2) Treatment Methods for the Study Group. The study group was treated with valsartan and hydrochlorothiazide. The application of valsartan was the same as that of the reference group. Hydrochlorothiazide treatment was performed on this basis. The patients were instructed to take hydrochlorothiazide (produced by Jiangsu Pengyao Pharmaceutical Co. Ltd., SFDA approval No. H32031724). The first dose was 6.5 mg, which can be reasonably adjusted to 13mg per day if the effect is unsatisfactory.

During the treatment period, a high-quality comprehensive care model has been adopted for both the study group and the reference group. A scientific diet program has formulated, mainly low-salt and low-fat light diets. Patients have taken appropriate exercise. The two groups received continuous treatment for three months, and then the efficacy was compared.

Observation indicators

For the two groups of patients, the overall treatment efficacy was observed and compared: After treatment, if the patient's heart symptoms improve significantly, and the heart function is improved by one or more levels, the treatment is markedly (Mark and Ally 2017; Raza *et al*., 2017); after treatment, the patients' heart symptoms have certain improvement, heart function is improved by one level, the treatment is effective; after treatment, if the patient's heart symptoms have no improvement, heart function does not change or even deteriorates, the treatment is invalid. Changes in systolic blood pressure and diastolic blood pressure before and after treatment were observed for both groups, and adverse reactions (headache, nausea, vomiting, edema of the lower limbs, abnormal renal function, etc.) during the treatment period were counted. In addition, UCG was performed on patients to detect changes in left ventricular mass index (LVMI), left ventricular posterior wall thickness (LVPWT) and left ventricular ejection fraction (EF).

STATISTICAL ANALYSIS

The statistical analysis software used was SPSS 21.0. Where, the measurement data were expressed as mean± average ($\bar{X}$ ± s), and t was used for comparison between groups; the count data were expressed using natural number (n) and percentage (%), and chi-square was used for comparison between groups. P<0.05 indicates statistical value (Li 2017, Sarwar *et al*., 2017).

RESULTS

Changes in blood pressure before and after treatment in both groups

As shown in table 1 in comparison of blood pressure levels, there is no significant difference before treatment, P<0.05, with no statistical significance. After treatment, the study group has more obvious reduction in diastolic and systolic blood pressure, P<0.05 with statistical significance.

Changes of heart function indicators in the two groups

As shown in table 2, before the treatment, there is no significant difference in the heart function indicators between the two groups, P>0.05; after treatment, the left ventricular mass index and left ventricular posterior wall thickness were significantly higher in the study group, P<0.05, while left ventricular ejection fraction is obviously lower in the study group, P<0.05.

Overall treatment efficacy and incidence of adverse reactions in both groups

As shown in table 3, compared with the reference group, the study group has higher overall treatment efficacy and lower incidence of adverse reactions, P<0.05, with statistical significance.

Table 1: Changes in blood pressure before and after treatment in both groups ($\bar{x}$ ±s)

Group	Diastolic pressure (mmHg)		Systolic pressure (mmHg)	
	Before	After	Before	After
Study group (n=80)	112.47±5.80	88.65±5.13	158.79±7.80	124.36±7.11
Reference group (n=80)	111.39±5.35	96.39±5.10	157.46±7.05	137.80±7.94
t	0.23	6.80	1.05	6.65
P	>0.05	<0.05	>0.05	<0.05

Table 2: Changes of heart function indicators in the two groups ($\bar{x}$ ±s)

Group	Left ventricular mass index (mm)		Left ventricular posterior wall thickness (mm)		Left ventricular ejection fraction (%)	
	Before	After	Before	After	Before	After
Study group (n=80)	155.35±7.35	112.30±7.09	13.29±1.85	8.27±1.12	61.20±2.57	69.07±3.29
Reference group (n=80)	156.79±7.20	125.83±7.05	13.28±1.05	9.76±1.59	61.22±2.69	64.50±2.90
t	0.10	8.05	1.02	6.70	0.11	6.09
P	>0.05	<0.05	>0.05	<0.05	>0.05	<0.05

Table 3: Overall treatment efficacy and incidence of adverse reactions in both groups [n, (%)]

Group	Case number	Overall treatment efficacy	Incidence of adverse reactions
Study group	80	77(96.25)	3(3.75)
Reference group	80	66(82.50)	12(15.00)
X^2			6.72
P			<0.05

DISCUSSION

Hypertension is a common cardiovascular disease. It is prone to complicated diseases in heart, liver and kidney, which can increase mortality and morbidity. Actively controlling blood pressure levels is of vital importance to prevent and control vascular events. In the treatment of hypertensive heart disease, blood pressure reduction to target can also reduce the incidence of heart disease and mortality. Because the incidence of hypertension is caused by many concurrent mechanisms, it is necessary to control blood pressure within ideal state (Meng, 2017, Marie and Jana 2017).

Currently, combination drug therapy, as an effective way to treat hypertensive heart disease, can well control blood pressure levels. A lot of clinical research and practical experience shows that Valsartan and hydrochlorothiazide can get good results in the treatment of hypertensive heart disease. valsartan, a typical angiotensin II receptor inhibitor, can effectively block the binding of Ang II and AT1 receptors, reduce peripheral vascular resistance and prevent reflex sympathetic nerve activation so that excretion of sodium and water is effectively increased. Also, it can reduce aldosterome secretion, enabling sustainable antihypertension (David and Patricia 2015; Tatyana and Giora 2017, Shareef and Akhtar 2018). Hydrochlorothiazide, an effective thiazide diuretic, provides good antihypertensive effect via natriuresis, but it can easily cause epinephrine and angiotensin activation in patients. Combined application of valsartan and hydrochlorothiazide can inhibit activity of angiotensin, so that the two drugs work synergistically to exert the best antihypertensive effect. At the same time, it can protect the organs, reduce the incidence of adverse reactions, and enhance treatment safety and reliability.

CONCLUSION

In summary, combination of valsartan and hydrochlorothiazide for hypertensive patients with heart disease can significantly improve the treatment efficacy, receive better ultrasound inspection result, and significantly reduce the incidence of adverse reactions with higher safety and reliability.

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