OBSERVATION OF EFFICACY OF COMBINED MEDICATION OF BISOPROLOL AND IRBESARTAN ON CHRONIC CONGESTIVE HEART FAILURE

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ABSTRACT

Objective: To investigate the clinical efficacy of combined medication of bisoprolol and irbesartan on chronic congestive heart failure.

Methods: A total of 98 patients with chronic congestive heart failure who were admitted to this hospital for treatment between June 2015 and May 2017 were selected as the subjects, and randomly divided into two groups, i.e. the control group and the observation group. For patients in the control group, they underwent regular treatment, while those in the observation group, they additionally received the combined medication of bisoprolol and irbesartan. Then the ameliorations in heart functions were compared between two groups through changes in measurements of blood pressure, heart rate, left ventricular ejection fraction (LVEF), end-systolic and -diastolic volumes.

Results: After treatment, indicators of patients in two groups were all ameliorated significantly in these two groups, while the amelioration in the observation group was much better than that in the control group (p<0.05). In terms of the effectiveness, the effective rate in the observation was as high as 93.9%, significantly higher than 77.6% in the control group (p<0.05).

Conclusion: Combined medication of bisoprolol and irbesartan manifest significant effectiveness in treatment of chronic congestive heart failure through ameliorating the indicators of heart function. In addition, this strategy can increase the effectiveness of treatment, which is conducive to the health of patients, and deserves to be promoted in clinical practice.

Keywords: bisoprolol, irbesartan, chronic congestive heart failure, efficacy.

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Introduction

Chronic congestive heart failure refers to the damage to myocardium and variations in structure and function of myocardium caused by a variety of factors, which usually results in a decrease in pump/filling function of ventricle; generally, it is manifested by dyspnea, fatigue and fluid retention1-2. Without any timely intervention, it can severely affect the patients’ life with a extremely high mortality rate3. Thus, it is quite urgent to develop effective and active method to stabilize the disease and optimize the clinical outcome.

As for treatment, etiological control (hypertension and diabetes mellitus) and amelioration in symptoms (diuresis and cardiotonic treatment) are usually preferred in clinical practice, but progression in disease usually leads to morbidity and mortality. Hence, effective treatment is critical to the patients with chronic congestive heart failure4. In this study, we selected 98 patients with chronic congestive heart failure as the subjects, aiming to explore the clinical efficacy of combined medication of bisoprolol and irbesartan. Now, detailed information about this study is reported as follows.
Data and methods

Clinical data
A total of 98 patients with chronic congestive heart failure who were admitted to this hospital for treatment between June 2015 and May 2017 were selected as the subjects, and randomly divided into two groups, i.e. the control group (n=49) and the observation group (n=49). In the control group, there were 26 males and 23 females aged between 40 and 79 years old; in the observation group, there were 28 males and 21 females aged between 42 and 80 years old. Comparison of general data between two groups showed no statistically significant difference (p>0.05). This study had been approved by the Ethic Committee of this hospital.

Inclusive criteria
• Patients conforming to the diagnostic criteria of chronic congestive heart failure;
• Patients who had not received the treatment of bisoprolol or irbesartan;
• Patients who cooperated with the physicians to fulfill the treatment and had complete data.

Exclusive criteria
• Patients who were allergic to bisoprolol or irbesartan;
• Patients with cardiac hypertrophy or any other conditions that interfered with the measurements of cardiac function;
• Patients with severe pulmonary hypertension or pulmonary dysfunction;
• Patients who were complicated with general infectious diseases;
• Patients who were complicated with severe autoimmune diseases.

Treatment
• Before treatment, patients were observed for one week, during which drugs affecting the blood pressure were withdrawn, e.g. the vasodilator substance;
• For patients in the control group, they received the regular treatment, including treatment for diuresis, improvement in heart pumping, vascular dilation, acid-base balance, electrolyte balance, nutritious support and symptomatic treatment. Medication was carried out with all regular drugs for treatment of heart failure;
• For patients in the observation group, in addition to the treatment for patients in the control group, they also received the combined medication of irbesartan and metoprolol. Irbesartan (SFDA No.: H20000513; 0.15 g/tablet) was administrated at an initial dose of 75 mg/d, and increment was dependent on the patient’s condition within 300 mg/d; bisoprolol (SFDA No.: H20100678; 5 mg/tablet) was administrated at an initial dose of 5 mg/d once per day, and the adjustment of dose should be made within 20 mg/d. All drugs were took orally, and medication would last for 12 to 16 weeks.

Evaluation
• During treatment, changes in following indicators were observed before and after treatment: systolic blood pressure (SBP), diastolic blood pressure (DBP), heart rate (HR) and left ventricular ejection fraction (LVEF), end-systolic volume (LVESV) and end-diastolic volume (LVEDV);
• Evaluation of efficacy: According to the standards of NYHA, cardiac functions were evaluated: Amelioration in cardiac function ≥ Grade 2 was deemed as excellent, amelioration reaching to Grade 1 as effective, and no amelioration or even exacerbation as ineffective\(^{(2)}\). Total effective rate = Excellent rate + Effective rate.

Statistical analysis
Data in this study were analyzed by SPSS 17.0. Measurement data were presented as (x±s), and t-test was adopted for comparison; enumeration data were presented as n (%), and chi-square test was adopted for comparison. p<0.05 suggested that the difference had statistical significance.

Results

General data of patients in two groups
General data of patients in two groups are shown in Table 1. Comparison of general data between two groups showed no statistically significant difference (p>0.05).

Comparison of the indicators of patients before and after treatment
Before treatment, differences in indicators of patients between two groups showed no statistical significance (p>0.05). After treatment, indicators of patients in two groups were all ameliorated significantly in these two groups, while the amelioration in the observation group was much better than that in the control group (p<0.05; Table 2).
Comparison of the total effective rates between two groups

In terms of the effectiveness, the effective rate in the observation was as high as 93.9%, significantly higher than 77.6% in the control group (p<0.05; Table 3).

Discussion

As a common cardiovascular disease, chronic congestive heart failure has been confirmed as a kind of myocardial remodeling secondary to the heart failure with clinical manifestations like decline in ejection function of left ventricle, which can hardly sustain the regular heart perfusion, leading to a decrease in blood pressure and inadequate cardiac output, thereby affecting other organs and the life of patients.(4-5) Generally, progression in myocardial remodeling is a complicated process involving changes in many aspects, including: abnormal excitement of RAAS, exacerbating the heart failure; congestion in left ventricle, enlarging the heart wall, activating the neuroendocrine system and accelerating the ventricular remodeling, thus deteriorating the heart function and myocardial damage; damaged myocardium can further activate the neuroendocrine system, forming a vicious cycle, which can gradually aggravate the heart failure.(6)

Currently, in the clinical treatment of chronic congestive heart failure, medication has been the dominant method. Conventional treatment includes the medication for diuresis, enhancement in heart pumping and dilation to ameliorate the condition of patients, but fails to reverse the remodeling of myocardium, which severely limits the efficacy.(7)

Based on the pathogenesis of GHF, ideal efficacy should be achieved by blocking the activation of neuroendocrine system, thus preventing the myocardial remodeling and ameliorating the heart function of patients. Therefore, angiotensin II receptor antagonist and β1 receptor inhibitor are required.(8) It has been reported that irbesartan, a kind of antagonist of angiotensin II, can reduce the level of angiotensin to decrease the blood pressure and inhibit the myocardial remodeling; bisoprolol is a kind of inhibitor of β1 receptor that can suppress the activation of RAAS, manifesting a significant effect in decreasing the blood pressure, stabilizing the heart rate and reducing the cardiac output; generally, it is used in treatment of hypertension and heart disease.(9-10)

In this study, before treatment, differences in indicators of patients between two groups showed no statistical significance (p>0.05). After treatment, indicators of patients in two groups were all ameliorated significantly in these two groups, while the amelioration in the observation group was much better than that in the control group (p<0.05).
In terms of the effectiveness, the effective rate in the observation was as high as 93.9%, significantly higher than 77.6% in the control group (p<0.05). These results showed that for patients with chronic congestive heart failure combined medication of bisoprolol and irbesartan can gain promising efficacy through ameliorating the symptoms and cardiac functions of patients.

In conclusion, combined medication of bisoprolol and irbesartan manifest significant effectiveness in treatment of chronic congestive heart failure through ameliorating the indicators of heart function. In addition, this strategy can increase the effectiveness of treatment, which is conducive to the health of patients, and deserves to be promoted in clinical practice.

References


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