Clinical Study of Atorvastatin Calcium Combined with Metoprolol in the Treatment of CHF

Mengqi Jia, Liguo Jian

The Second Affiliated Hospital of Zhengzhou University, zhengzhou, Henan450000

Keywords: CHF; Atorvastatin Calcium Combined; Metoprolol; Clinical Study

Abstract: Objective: Study on the clinical effect of metoprolol combined with atorvastatin on chronic heart failure (CHF). Methods: 106 patients with chronic heart failure from October 2017 to September 2018 were selected. According to the principle of random distribution, the patients were divided into control group (n = 53) and experimental group (n = 53). Both groups were treated with conventional methods, among which, the observation group will be treated with metoprolol and atorvastatin calcium at the same time. Finally, the results are obtained by comparing the therapeutic effects. Result: Indexes of cardiac function, the indexes of heart function, inflammatory factors and blood lipid in the experimental group were better than those in the control group ($P < 0.05$). Conclusion: metoprolol combined with atorvastatin calcium has a good clinical effect on chronic heart failure, which can effectively improve heart function. Therefore, metoprolol combined with atorvastatin calcium is worthy of clinical promotion.

1. Introduction

Chronic heart failure can be referred to as CHF, which is a common heart disease in clinic. CHF is a kind of syndrome disease with dysfunction of cardiac blood discharge, which leads to the failure of blood discharge to meet the needs of tissue metabolism. At present, the pathogenesis of CHF has not been clearly explained in the world, which leads to no obvious drugs to treat. At present, there are many drugs in the world that can treat and link chronic heart failure. However, there is no unified and effective treatment plan. Therefore, patients with CHF may die suddenly at any stage. According to the results of the study, the survival rate of CHF patients over 5 years is less than 50%. Among them, atorvastatin calcium combined with metoprolol is a more commonly used drug, which can be used to treat a variety of cardiovascular diseases, such as unstable angina, atherosclerosis, myocardial infarction and so on. However, there are few academic monographs about the combination therapy of atorvastatin calcium and metoprolol for CHF. Apolipoproteins synthesized by the liver can be used as markers of vascular tissue damage, which can refer to the risk of cardiovascular diseases. Therefore, this article proved that metoprolol combined with atorvastatin calcium can treat CHF through clinical practice. The following indicators are mainly evaluated, as shown in Figure 1.

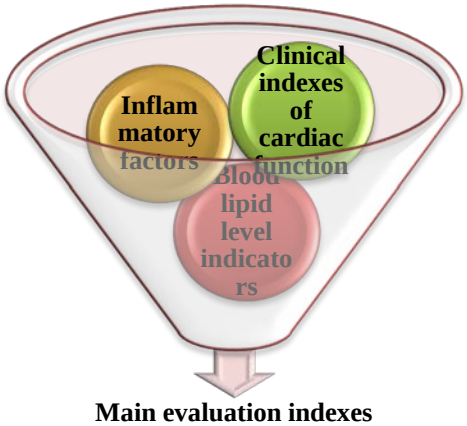

Figure 1. Main evaluation indexes

2. Data and methods

2.1 General information

In this study, 106 CHF patients were selected from a third-class hospital from October 2017 to September 2018. This study was divided into two groups randomly, the average age of the experimental group was 46.57 ± 3.87 years old, and the average age of the control group was 51.50 ± 4.15 years old. There was no significant difference between the experimental group and the control group ($P > 0.05$).

2.2 Clinical treatment

The two groups were treated with conventional treatment, which mainly included oxygen inhalation, diuresis, vasodilation and other conventional treatment. Among them, the experimental group will use metoprolol, which is produced by AstraZeneca Pharmaceutical Co., Ltd. and the national drug standard is h32025391. Among them, the initial dosage of this treatment is 6.25mg/time, twice a day, and the maximum dosage is no more than 100mg. Among them, atorvastatin calcium is produced by Huasheng Pharmaceutical Co., Ltd. of Shijiazhuang Pharmaceutical Group, and GJZ is h20103151. The dosage of this treatment is 20mg / d. This clinical trial was conducted after 2 months of treatment cycle.

2.3 Evaluation index

The indexes of heart function, inflammatory factors and blood lipid were compared between the two groups.

2.4 Statistical methods

The results of this clinical trial were processed by spss23.0, in which the measurement data was expressed by ($x \pm s$) and t test was used. $P < 0.05$ means the difference is statistically significant.

3. Clinical trial results

3.1 Clinical indexes of cardiac function

In this trial, the cardiac function indexes of the two groups were compared before and after treatment, including LVEF, LVESD and E / A. According to the statistical results, $P > 0.05$. Therefore, the difference is not statistically significant and the details are shown in Table 1. According to table 1, it can be seen from the horizontal comparison between the two groups that LVEF is increasing, while E / A and LVESD are decreasing in varying degrees. The longitudinal comparison between the two groups shows that the change of indicators in the experimental group is significantly better than that in the control group. The difference was statistically significant ($P < 0.05$).

Table 1. Comparison of heart function indexes before and after treatment ($x \pm s$)

Group	No.	LVEF（%）		LVESD（mm）		E/A	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Control group	53	35.32±4.78	41.22±4.24*	48.41±5.98	44.48±6.36*	1.18±0.22	1.16±0.18*
Test group	53	34.62±4.27	48.27±4.82*	48.54±7.52	40.75±5.79*	1.21±0.19	1.04±0.17*
t		0.42	2.748	0.101	3.245	0.653	3.321
P		0.675	0.007	0.92	0.002	0.516	0.001

3.2 Inflammatory factors and blood lipid level indicators

Table 2. Comparison of PCT and hs CRP before and after treatment (x ± s)

Group	PCT（ng/ml）		hs-CRP（mg/L）	
	Before treatment	After treatment	Before treatment	After treatment
Control group	8.02±0.58	1.77±0.23*	10.37±2.13	8.25±1.52
Test group	7.88±0.73	0.47±0.13*	10.11±1.86	6.01±1.87*
t	1.124	36.822	0.688	6.925
P	0.264	0	0.493	0

In this experiment, the inflammatory factors and lipid levels of the two groups were compared before and after treatment, including PCT, hs CRP, TG and TC. According to the statistical results, $P > 0.05$. Therefore, the difference is not statistically significant and the details are shown in Table 2 and table 3. According to table 2 and table 3, the levels of PCT, hs CRP, TG and TC in the two groups were reduced to varying degrees. The longitudinal comparison between the two groups shows that the index of the experimental group is significantly lower than that of the control group. The difference was statistically significant ($P < 0.05$).

Table 3. Comparison of TG and TC levels before and after treatment (x ± s)

Group	TG（mmol/L）		TC（mmol/L）	
	Before treatment	After treatment	Before treatment	After treatment
Control group	3.01±0.38	2.61±0.48*	6.71±0.68	5.42±1.15*
Test group	3.02±0.69	2.36±0.53*	6.75±1.02	4.68±1.18*
t	0.19	2.616	0.488	3.633
P	0.85	0.01	0.626	0

Discussion

CHF is a kind of comprehensive disease caused by many causes, which will lead to cardiac dysfunction and insufficient blood output. CHF patients often develop various symptoms * such as general fatigue, dyspnea, fluid retention, dizziness, etc. At present, the traditional treatment of CHF is mainly to strengthen the heart, absorb oxygen, expand blood vessels, etc., which can't cause greater effect. Metoprolol is a selective beta blocker that reduces cardiac output and slows heart rate. Therefore, metoprolol can reduce the degree of atherosclerosis. Atorvastatin calcium is a kind of statins, which can reduce serum triglyceride level. At the same time, atorvastatin calcium can increase the level of HDL. This study shows that there is no significant difference in blood lipid and cardiac function between the two groups before treatment, and the difference is not statistically significant. After treatment, the heart function, inflammatory factors and blood lipid levels of the control group and the experimental group were improved. However, the improvement effect of the experimental group was significantly higher than that of the control group. Atorvastatin calcium combined with metoprolol in the treatment of CHF patients, which is more advantageous than the drug alone. Through the combination of drugs, patients can significantly reduce the level of blood lipid and inflammatory factors, which will delay the progress of atherosclerosis. Through the combination of drugs, patients can reduce the incidence of adverse cardiovascular events and hospitalization rate.

Conclusions

On the basis of conventional treatment, metoprolol combined with atorvastatin calcium can better treat chronic congestive heart failure, which can improve the heart function of patients, reduce the level of blood lipid and inflammatory factors. Therefore, metoprolol combined with atorvastatin calcium can be used to treat CHF patients, which is worthy of clinical promotion.

References

[1] Yan Xiaoling. Effect of atorvastatin calcium combined with metoprolol on serum hs CRP level and cardiac function in patients with chronic heart failure [J]. Henan Medical Research, 2018,27 (5): 865-866.

[2] Ding Peng, Li Chunjuan. Clinical observation of β blocker combined with statins in the treatment of chronic heart failure [J]. Shaanxi medical journal, 2017,46 (2): 264.

[3] Li guode, Xu Qingbo, ye Haitao, et al. Observation on the efficacy of Atorvastatin Combined with trimetazidine in the treatment of chronic heart failure [J]. Journal of Integrated Chinese and Western medicine, 2017, 15 (4): 468-470.

[4] Ding Peng, Li Chunjuan. Clinical observation of β blocker combined with statins in the treatment of chronic heart failure [J]. Shaanxi medical journal, 2017, 46 (2): 264-272.

[5] Cai Meng, Zhang Ping. Clinical observation of atorvastatin calcium combined with metoprolol in the treatment of chronic congestive heart failure [J]. Chinese pharmacy, 2016,27 (21): 2907-2909.

[6] Ding Peng, Li Chunjuan. Clinical observation of β blocker combined with statins in the treatment of chronic heart failure [J]. Shaanxi medical journal, 2017, 46 (2): 264272.

[7] Zhu Tiefeng, Jiang Weihua, Xu Weiyi. Clinical study of atorvastatin calcium in the treatment of chronic congestive heart failure [J]. Chinese basic medicine, 2017,24 (12): 1845.

[8] Wu genfen, Zhang Qun, Chen Haiyong. Observation on the clinical efficacy of atorvastatin in patients with chronic heart failure [J]. Health research, 2017,37 (4): 462-463.