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Original Article

Therapeutic evaluation of rosuvastatin on lipids and endothelial cell functionalities in coronary artery lesions coinciding with hyperlipidemia

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Abstract: Objective: To analyze the changes of blood lipids and endothelial cell function in patients with coronary heart disease complicated with hyperlipidemia after treatment with rosuvastatin. Methods: A total of 120 patients with coronary heart disease and hyperlipidemia diagnosed from December 2020 to December 2021 were retrospectively included. Depending on the differences of their treatment strategies, patients were divided into the study group (60 patients were treated with rosuvastatin using the conventional treatment) and the control group (60 patients were treated with the conventional treatment). Dynamic blood lipid level monitoring was performed on the two groups of patients. The changes of cardiac function and hemorheology indexes were evaluated before and after the treatment. Analyze the difference of vascular endothelial function index between the two groups before and after the treatment. Count the occurrence of adverse reactions during the intervention period of the two groups. Results: Before the treatment, there was no significant difference between the two groups in total cholesterol (TC), triglyceride (TG), low density lipoprotein (LDL-C), left ventricular ejection fraction (LVEF), left ventricular end-systolic diameter (LVDS), left ventricular end-diastolic diameter (LVEDD), fibrinogen content, plasma viscosity, nitric oxide (NO), and endothelin (ET) levels (P>0.05). At 60 days of treatment, there was no significant difference between the two groups in TC, TG, LDL-C, LVDS, and LVEDD. The fibrinogen content, plasma viscosity, and ET level were lower than those in the control group (P<0.05). The HDL-C, LVEF, and NO levels were higher than those in the control group (P<0.05). There was no significant difference in the total incidence of adverse reactions between the two groups (8.33% vs 13.33%) (P>0.05). Conclusion: Resuvastatin can reduce the level of blood lipids in patients with coronary heart disease and hyperlipidemia and improve the hemorheology indexes and cardiac function of patients. Its mechanism may be related to the regulation of vascular endothelial cell function in patients with coronary heart disease.

Keywords: Coronary artery disease, rosuvastatin, hyperlipidemia, vascular endothelium

Introduction

Coronary heart disease (CHD) belongs to one of the cardiovascular diseases with a high incidence [1], coronary atherosclerotic heart disease. It is caused by atherosclerotic lesions in the coronary vessels, followed by vascular lumen obstruction or stenosis, and leads to myocardial necrosis, hypoxia, or ischemia [2]. The World Health Organization divides coronary heart disease into five types, sudden death, ischemic cardiomyopathy, myocardial infarction, angina pectoris, and silent myocardial ischemia [3]. The risk factors of the disease can be divided into two types: modifiable and unmodifiable. Modifiable risk factors include psychosocial factors, excessive alcohol consumption, lack of physical activity, unreasonable diet, hyperglycemia, dyslipidemia, and hypertension. Unmodifiable risk factors include family history, age, and gender [4, 5]. The treatment measures of coronary heart disease include drug therapy and surgical treatment. Drug therapy is used in patients with mild disease and can improve the clinical symptoms of patients. Surgery is the main treatment of patients with critical disease.

Dyslipidemia is a major risk factor for atherosclerosis. It is closely related to the occurrence

and development of coronary heart disease. There are many patients with coronary heart disease complicated by hyperlipidemia [6, 7]. Several basic research and clinical epidemiological studies have pointed out that dyslipidemia can mediate vascular endothelial dysfunction, vascular endothelial injury, cell growth factor activation, inflammatory response, and oxidative response before affecting the process of coronary heart disease [8, 9]. In the treatment of patients with coronary heart disease complicated with hyperlipidemia, symptoms should be actively improved. Comprehensive treatment should be started from increasing vascular endothelial function to improve patients.

Rosuvastatin is a selective HMG-CoA reductase inhibitor. Pharmacological experiments have indicated that this drug can inhibit VLDL synthesis by increasing the number of low-density lipoprotein (LDL-C) cell surface receptors. This promotes the absorption and catabolism of LDL-C, and plays a role in regulating blood lipids [10]. With the clinical application of rosuvastatin, additional pharmacological effects of this drug have been excavated. Previous studies have indicated that this drug can have a lipid-regulating effect. Long-term administration of this drug can reduce lipid infiltration and foam cell formation. They play a role in delaying the process of atherosclerosis [11]. This study intended to retrospectively analyze the effect of rosuvastatin in improving the clinical symptoms of patients with coronary heart disease and hyperlipidemia. We planned to verify the effect of rosuvastatin on vascular endothelial cell function, to facilitate the development of basic experiments at a later stage. Rosuvastatin has certain advantages in the treatment of patients with coronary heart disease and hyperlipidemia. Existing studies have confirmed that rosuvastatin can significantly reduce the level of blood lipids in patients. The long-term effect of regulating the cardiac function of patients is certain. It is described in detail below.

Materials and methods

Study design and patients

The study collected 120 patients with coronary heart disease complicated with hyperlipidemia from December 2020 to December 2021 through a retrospective analysis and electronic medical record system with reference to the following inclusion and exclusion criteria.

Inclusion criteria: (1) The patient had no allergy to the treatment drug; (2) The patients met the clinical diagnostic criteria of coronary heart disease; (3) The patient met the clinical diagnostic criteria for hyperlipidemia and did not take statins in the last 4 weeks before admission; (4) The investigation was carried out with the approval of the Zhangjiakou First Hospital Ethics Association; (5) The patient was 18-80 years old; (6) The patient's baseline data was complete, and the results of laboratory tests (such as ET and NO) were complete.

Exclusion criteria: (1) Patients with diabetes or hypertension; (2) Patients with severe liver or kidney dysfunction; (3) The patient had a blood system disease, tumor, or stroke; (4) Patients with thyroid disease; (5) The patient was dependent on drugs or alcohol; (6) Patients were included in open clinical investigators.

Data collection and grouping

After identifying the patients, the general clinical indicators such as sex, age, weight, BMI, and coronary heart disease classification of the patients were collected through the electronic medical record system. The observation indicators such as TC, TG, LDL-C, LVDS, LVEDD, fibrinogen content, plasma viscosity, NO, and ET of the patients were collected. Depending on the differences of treatment strategies, patients were divided into the study group (60 patients were treated with rosuvastatin based on conventional treatment) and the control group (60 patients were treated with conventional treatment). The patients in the control group were treated with basic drugs during the treatment period. This included taking angiotensin converting enzyme inhibitors, nitrates β-Receptor blockers, antiplatelet preparations, and fenofibrate. Patients were provided health education and medication guidance, regular follow-up, and appropriate exercise intervention, such as jogging and walking. Some patients were able to take Chinese medicine intervention measures (such as massage) as appropriate. The observation group was treated with rosuvastatin (purchased from AstraZeneca UK limited, Sinopharm Standard: J20120006, strength: 10 mg/7s) once a day, 1 tablet each time, orally, based on the control group. Both the observa-

Table 1. General data ($\bar{x} \pm s$)/[n (%)]

General Clinical Data		Research Group (n=60)	Control group (n=60)	*t*	*P*
Sex	Male	30	31	0.033	0.855
	Female	30	29		
Mean age (years)		65.19 ± 3.41	65.21 ± 3.51	0.032	0.975
Average weight (kg)		62.10 ± 5.98	62.08 ± 6.01	0.018	0.986
Average BMI (kg/m^2)		23.10 ± 3.43	23.08 ± 3.41	0.032	0.975
SBP (mmHg)		135.26 ± 8.51	137.23 ± 7.15	0.069	0.581
DBP (mmHg)		85.63 ± 9.65	86.01 ± 8.59	0.556	0.216
Typing	Concealment	25	23	0.875	0.876
	Angina pectoris	30	31		
	Miocardial infarction	5	6		
Take medicine	aspirin	53	50	0.559	0.654
	Isosorbide mononitrate	55	57	0.441	0.831
	Betaloc	41	38	0.369	0.874
	Felodipine	39	41	0.965	0.115
Nation	Han nationality	50	51	0.063	0.803
	Other nationalities	10	9		
Smoke	Yes	20	15	1.008	0.315
	No	40	45		
Carotid artery disease		6	7	0.086	0.769
Arterial disease of lower extremity		5	6	0.100	0.752
Chronic renal insufficiency		0	2	2.034	0.154
Dialytic therapy		0	1	1.008	0.315
Left ventricular ejection fraction	Normal or critical	55	53	0.263	0.559
	Mild/moderate reduction	5	7		
	Severe reduction	0	0		
Heart failure	Yes	0	2	2.034	0.154
	No	60	58		

tion group and the control group were continuously treated for 60 days.

When comparing the general clinical data of the two groups of patients, it was found that there was no significant difference in the general clinical data between the two groups (P>0.05), indicating that the comparability was good, as shown in **Table 1**.

Observation indexes and evaluation criteria

Main observation indicators: (1) Changes of blood lipid parameters during the treatment in the two groups, blood samples were collected from the two groups before the treatment and at 60 days of treatment. TC, TG, LDL-C, and HDL-C levels in the blood samples were measured using AU5600 automatic biochemical analyzer (manufacturer: Olympus, Japan). The differences between the two groups were compared. (2) Changes of cardiac function before and after the treatment in the two groups, LVEF, LVEDD, and LVDS levels were assessed using color Doppler ultrasound diagnostic apparatus (Philips HD15000) before the treatment and after 60 days of treatment. The differences between the two groups were compared.

Secondary outcome measures: (1) Changes of hemorheological parameters before and after the treatment in the two groups, fibrinogen content and plasma viscosity in the blood samples of the two groups were measured using an automatic hemorheology apparatus and automatic coagulometer before the treatment and after 60 days of treatment. The differences between the two groups were compared [12]. (2) The incidence of various adverse reactions

included skin itching, gastrointestinal discomfort, liver and kidney function damage, muscle pain, and allergic reactions during the treatment in the two groups.

Statistical methodology

SPSS22.0 statistical software was selected to analyze the data collected in the study. For intra-group comparison, paired sample t-test should be used, and for inter-group comparison, independent sample t-test should be used. For multi-group comparison, one-way ANOVA and post-match Bonferroni or Turkey test should be used. The chi-square test was used for the difference of counting data between the groups. P<0.05 was taken as the difference with significance [13].

Results

Interpretation of changes in lipid indexes during treatment in two groups of patients

The levels of TC, TG, LDL-C, and HDL-C of service users in each of these organizations were utilized as reflection indicators. Dynamic monitoring discovered that the variance with the above metrics of service users in both groups before the treatment were not clinically important (P>0.05). The thresholds of TC, TG, and LDL-C of patients in the systematic review at 60 days of treatment were lower than those in the control group. The levels of HDL-C were vastly shorter than those. There was a quantitatively substantial variation (P<0.05), as shown in **Figures 1**-**4**.

Analysis of changes in cardiac function before and after treatment in the two groups

The results showed that the differences in LVEF, LVDS, and LVEDD between the two groups before the treatment were not significant (P>0.05). The comparison was conducted again at 60 d after the treatment. LVEDD were lower than those of the control group (P<0.05), as shown in **Figures 5**-**7**.

Comparison of changes in blood rheological parameters in the two groups before and after treatment

The variations in fibrinogen concentration and plasma viscosity between people diagnosed before therapy were considered to be slightly significant (P>0.05). The subgroups were evaluated after 60 months of exposure. After therapy, the fibrinogen concentration and plasma viscosity of the patients in the study group were much lower than others in the control condition, with significant variations observed (P<0.05), as shown in **Figures 8**, **9**.

Comparison of the changes of vascular endothelial function indexes before and after treatment in the two groups

NO level or ET level were included in the study. The difference between the two groups of patients in the above indexes before treatment was not significant (P>0.05). The NO level of patients in the study group was significantly higher than that of the control group after 60 d of treatment (P<0.05). The ET level was significantly lower than that of the control group (P<0.05), as shown in **Table 2**.

Comparison of the incidence of adverse reactions during treatment between the two groups of patients

The incidence of various adverse reactions such as skin pruritus, gastrointestinal discomfort, liver and kidney impairment, muscle pain, and allergic reactions in the two groups within 60 d of treatment were recorded by means of follow-up. The difference between the groups was not considered meaningful (P>0.05), as shown in **Table 3**.

Discussion

The statistical data of the World Health Organization has shown that cardiovascular disease has become the highest mortality of all diseases. The survey in 2004, shared that 17 million people died of cardiovascular and cerebrovascular diseases worldwide. This accounted for 29% of all deaths because of diseases. There were 7 million people who died of coronary heart disease and 6 million who died of stroke. The World Health Organization predicted the number of deaths from cardiovascular and cerebrovascular diseases worldwide will reach 23 million in 2030. In recent years, with the emergence of the aging trend of China's society and the change of residents' dietary structure, the prevalence of various cardiocerebrovascular diseases such as coronary

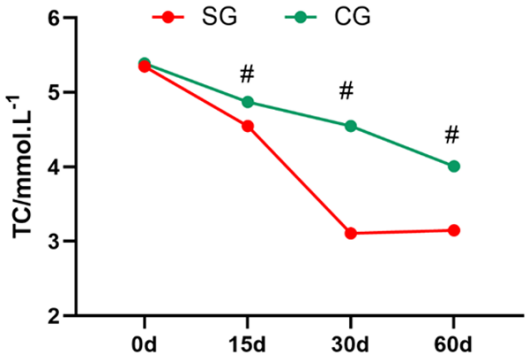

Figure 1. Changes in TC levels during treatment between the two sets of patients. Comparison showed that the differences in TC levels between the two groups before treatment were not significant (P>0.05). At the 60th d after treatment, the TC levels of patients in the study group were all lower than those in the control arm (P<0.05). # It represents that the difference between the groups of the same index at the same time point had significance.

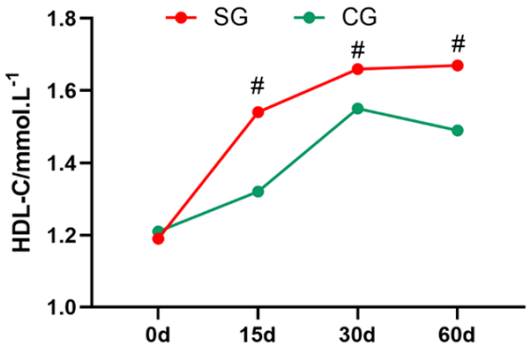

Figure 3. Differences in HDL-C levels between the two groups during therapy. The differences in HDL-C gap between these two groups before therapy were not significant (P>0.05), but the HDL-C levels of sufferers in the study cohort were all greater than the control group at the 60th day following treatment (P<0.05). For the same index, # It represents that the difference between the groups of the same index at the same time point has significance.

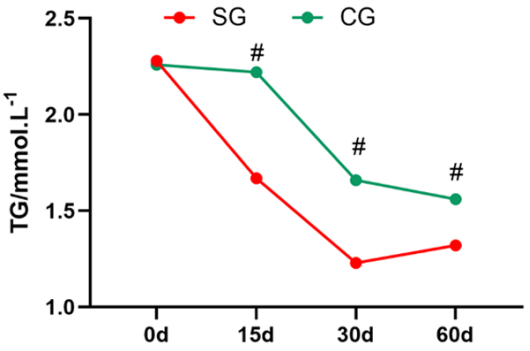

Figure 2. Changes in TG levels during treatment between the two groups. Comparison shows that the differences in TG levels between the two groups before treatment were not significant (P>0.05). At the 60th day after treatment, the TG levels of patients in the study group were all lower than those in the control group (P<0.05). # It represents that the difference between the groups of the same index at the same time point had significance.

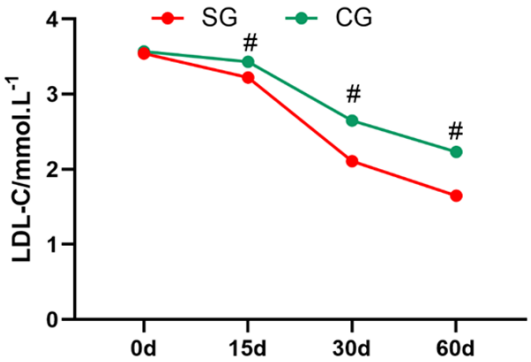

Figure 4. Changes in LDL-C levels during treatment between the two groups. Comparison shows that the differences in LDL-C levels between the two groups before the treatment were not significant (P>0.05). At the 60th d after the treatment, the LDL-C levels of patients in the study group were all lower than those in the control group (P<0.05). # It represents that the difference between the groups of the same index at the same time point had significance.

heart disease, myocardial infarction, and stroke showed an increasing trend [14]. Atherosclerosis is a kind of disease with main pathological changes such as decreased arterial elasticity, narrowing of arterial lumen, and thickening and hardening of arterial wall. Clinical research points out that atherosclerosis is the main pathological basis of various cardio-cerebrovascular diseases, such as myocardial infarction. Arteriosclerosis leads to arterial lumen stenosis or thrombosis. This leads to ischemia and hypoxia of individual myocardium because of insufficient blood supply. Myocardial infarction was induced. The specific cause of atherosclerosis is not clear. Studies have pointed out that abnormal cholesterol metabolism, inflammatory reaction, and abnormal lipid metabolism are closely related to the occurrence of this disease [16]. Atherosclerosis is the pathological basis of various cardio-cerebrovascular diseases. If the patient does not receive timely and effective intervention, it may develop into multiple organ or tissue lesions, affect the quality of life of the patient, and threaten the

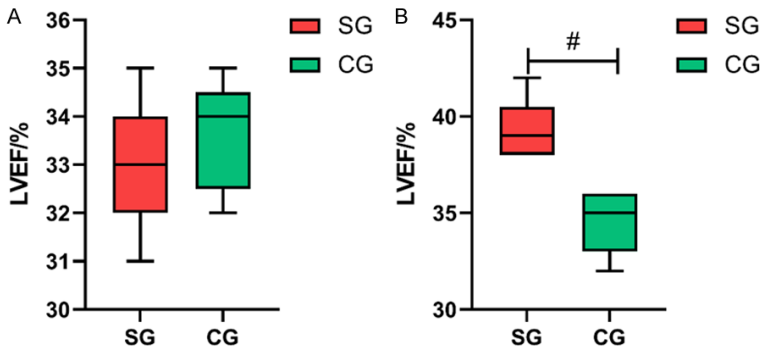

Figure 5. Demonstrates the variation in LVEF in the two categories during intervention. The variation in LVEF seen between 2 categories preceding intervention was not significant (P>0.05) (A), only after 60 days of exposure, the comparison revealed that the study group's LVEF was larger than the reference group's (P<0.05) (B). It represents that the difference between the groups of the same index at the same time point had significance.

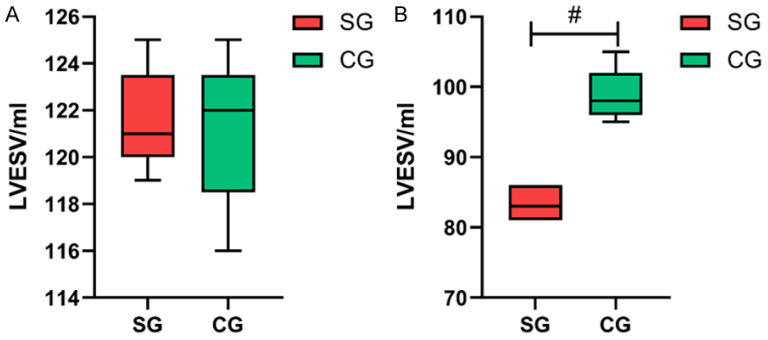

Figure 6. Analysis of LVDS before and after treatment in the two groups. The difference between groups in LVDS of the two groups before treatment was not significant (P>0.05). The comparison was carried out again at 60 d of treatment to show that the LVDS of patients in the study group was lower than that of the control group (P<0.05). # It represents that the difference between the groups of the same index at the same time point had significance.

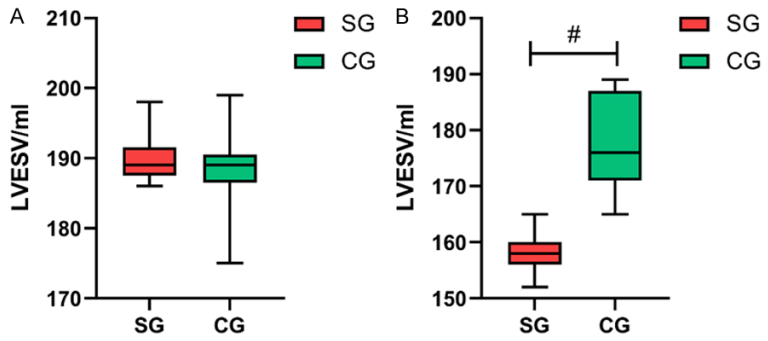

Figure 7. Analysis of LVEDD before and after treatment in the two groups. The difference between the two groups of LVEDD before treatment was not significant (P>0.05). The comparison was carried out again at 60 d of treatment to show that the LVEDD of patients in the study group was lower than that of the control group (P<0.05). # It represents that the difference between the groups of the same index at the same time point had significance.

life and health of the patient. It is recommended to treat atherosclerosis as soon as possible. It is believed that atherosclerosis is an evolving disease of vascular endothelial dysfunction and secondary inflammatory disease. Vascular endothelial dysfunction is one of the initiating and key factors of atherosclerosis [15]. Maintaining and restoring normal vascular endothelium is important for preventing atherosclerosis [16].

This study analyzed the clinical intervention effect of rosuvastatin on patients with coronary heart disease and hyperlipidemia and its effect on vascular endothelial function by setting up a control group. The results showed that in terms of regulating the blood lipid level, the levels of TC, TG, and LDL-C in the study group with rosuvastatin were significantly lower than those in the control group after 60 days of treatment. The levels of HDL-C were significantly higher than those in the control group. This suggested that the addition of rosuvastatin can accelerate the recovery of blood lipid levels in patients. A control study on 149 patients with coronary heart disease showed that rosuvastatin treatment for 2 months can reduce the TC level of patients from (6.57 ± 0.69) mmol/L to (4.28 ± 0.45) mmol/L. The improvement range was significantly better than that of the control group who only used low-fat diet and nitrates [17]. Studies on 127 elderly patients with coronary heart disease showed that the addition of rosuvastatin and atorvastatin could reduce the TC level of patients from (6.12 ±

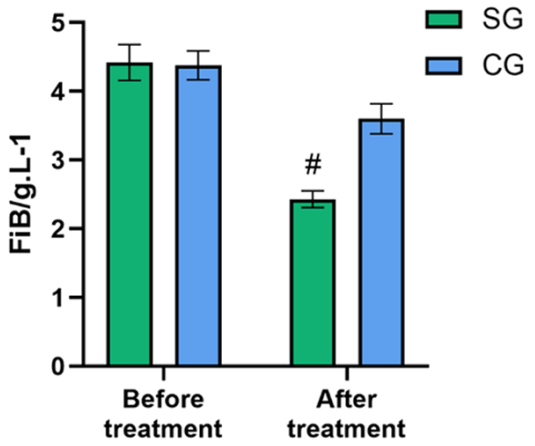

Figure 8. Analysis of changes in fibrinogen levels before and after treatment in the two groups. The difference between the groups in fibrinogen levels before the treatment was not significant (P>0.05). After the treatment the fibrinogen levels in patients in the study group were significantly lower than those in the control group (P<0.05). # It represents that the difference between the groups of the same index at the same time point had significance.

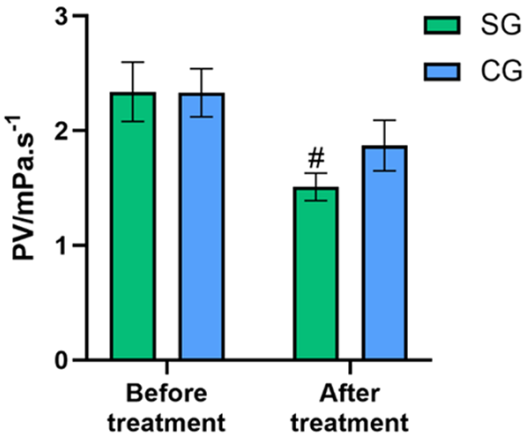

Figure 9. Analysis of plasma viscosity changes before and after treatment in the two groups. The difference between groups in plasma viscosity in the two groups before treatment was not significant (P>0.05). After the treatment the plasma viscosity of patients in the study group was significantly lower than that of the control group (P<0.05). # It represents that the difference between the groups of the same index at the same time point had significance.

0.53) mmol/L to (4.02 ± 0.44) mmol/L, with a significant decrease [18]. The author of this paper believes that traditional Chinese medicine therapy has a positive effect in regulating blood lipids and improving cardiac function of patients with coronary heart disease. Many studies have confirmed that traditional Chinese medicine therapy can significantly relieve the clinical symptoms of patients with coronary heart disease and hyperlipidemia. It helps to improve the lung function of patients. These have positive significances in improving the quality of life of patients. Statins belong to HMG-CoA reductase inhibitors, which are relatively comprehensive lipid-lowering drugs. They can reduce the synthesis of cholesterol in cells by blocking the metabolic pathway of valproate in cells. This stimulates the increase of the number and activity of LDL-C receptors on the surface of cell membrane in a feedback manner and increasing the clearance and lowering the level of cholesterol. This mechanism is of positive significance for inhibiting atherosclerosis and thrombosis [19]. This was reflected in the decrease of plasma viscosity and fibrinogen level of patients in the study group after intervention in the article. Some studies have pointed out that the abnormality of hemorheology will increase the aggregation of red blood cells, lead to microcirculatory disorders, and induce the emergence of thrombosis and atherosclerosis. This would aggravate the symptoms of coronary heart disease and form a vicious circle [20]. The application of statins block the process. It has a positive significance in improving the prognosis of patients with coronary heart disease and hyperlipidemia.

This paper demonstrated the effect of rosuvastatin on vascular endothelial function in patients with coronary heart disease and hyperlipidemia. The results showed that the level of ET in the study group decreased and the level of NO increased significantly after treatment. Previous studies have confirmed that NO and prostacyclin have similar effects. They can expand blood vessels, prevent platelet adhesion and aggregation on vascular endothelium, prevent leukocyte adhesion, inhibit smooth muscle proliferation, and facilitate blood flow [21] ET has the opposite effect, constricting blood vessels, promoting smooth muscle cell proliferation, and cell adhesion [22]. Statins can restore the endothelial function damage caused by hyperlipidemia by regulating the levels of the above two vascular endothelial factors, producing the effect of improving the clinical symptoms of patients. The comparison of cardiac function between the two groups of patients in the article shows that rosuvastatin

Table 2. Vascular endothelial function index changes in both groups before and after treatment

Group	Number of cases	NO		ET	
		Before treatment	Post-treatment	Before treatment	Post-treatment
Study group	60	25.15 ± 2.51	41.15 ± 3.65	6.29 ± 1.33	3.89 ± 0.82
Control group	60	25.54 ± 2.48	31.25 ± 2.68	6.28 ± 1.98	4.72 ± 0.87#
t	-	0.86	16.94	0.03	1.44
P	-	0.39	<0.001	0.97	0.15

Note: Compared with pre-treatment, #P<0.05.

Table 3. Adverse reaction rate during treatment was compared between two groups of patients

Group	Number of cases	Itchy skin	Gastrointestinal discomfort	Liver and kidney function impairment	Muscle pain	Allergic reactions	Total incidence
Study group	60	2 (3.33)	2 (3.33)	1 (1.67)	2 (3.33)	1 (1.67)	8 (13.33)
Control group	60	1 (1.67)	1 (1.67)	1 (1.67)	1 (1.67)	1 (1.67)	5 (8.33)
X^2	-	0.342	0.342	0.0	0.342	0.0	0.776
P	-	0.559	0.559	1.0	0.559	1.0	0.378

has a positive significance in improving the cardiac function of patients in the long term. The reason is that rosuvastatin can improve the process of atherosclerosis and stabilize or reduce the atherosclerotic plaque of patients by improving the endothelial function of blood vessels [23]. The comparison of the incidence of adverse reactions between the two groups shows that rosuvastatin is safe to take.

To sum up, rosuvastatin can reduce the blood lipid level of patients with coronary heart disease and hyperlipidemia and improve the hemorheology indexes and cardiac function of patients. The specific reason may be related to the drug's ability to regulate the vascular endothelial function of patients. In this study, the clinical intervention effect of rosuvastatin on patients with coronary heart disease complicated with hyperlipidemia and the effect on vascular endothelial function were analyzed by establishing a control group. The results showed that in terms of regulating blood lipid levels, the TC, TG, and LDL-C levels in the study group added with rosuvastatin were significantly lower than those in the control group at 60 days of treatment. The HDL-C level was significantly higher than that in the control group. This suggested that the addition of rosuvastatin effectively accelerated the recovery of blood lipid levels in patients. The results of a controlled study in 149 patients with coronary heart disease showed that rosuvastatin treatment for 2 months could reduce TC level from (6.57 ± 0.69) mmol/L to (4.28 ± 0.45) mmol/L. This was significantly better than that in the control group using low-fat diet and nitrates alone [17]. A study of 127 elderly patients with coronary heart disease showed that the addition of rosuvastatin and atorvastatin could reduce TC levels from (6.12 ± 0.53) mmol/L to (4.02 ± 0.44) mmol/L, with a significant decrease [18]. The authors analyzed that traditional Chinese medicine is effective in regulating blood lipid and improving cardiac function in patients with coronary heart disease. More studies have confirmed that traditional Chinese medicine can significantly relieve the clinical symptoms of patients with coronary heart disease and hyperlipidemia. It helps to improve the pulmonary function of patients. These have positive significance for improving the quality of life of patients. Statins belong to HMG-CoA reductase inhibitors, which belong to a more comprehensive lipid-lowering drug and can reduce intracellular cholesterol synthesis by blocking the intracellular hydroxymevalonate metabolic pathway. Feedback stimulates an increase in the number and activity of LDL-C receptors on the cell membrane surface, increases cholesterol clearance, and decreases levels. This mechanism has a positive significance in inhibiting atherosclerosis and thrombosis [19]. This was reflected in the decrease in plasma viscosity and fibrinogen levels after intervention in the study group. Some studies have indicated that abnormal hemorheology will increase the aggregation of red blood cells,

lead to microcirculatory disorders, and induce the appearance of thrombosis and atherosclerosis. This would aggravate the symptoms of coronary heart disease and form a vicious cycle [20]. The application of statins can block this process and has a positive significance in improving the prognosis of patients with coronary heart disease and hyperlipidemia.

The effect of rosuvastatin on vascular endothelial function in patients with coronary heart disease and hyperlipidemia was demonstrated. The results showed that ET levels decreased and NO increased significantly in the study group after the treatment. Previous studies have confirmed that NO and prostacyclin have similar effects, can dilate blood vessels, prevent platelet adhesion and aggregation in vascular endothelium, prevent leukocyte adhesion, inhibit smooth muscle proliferation, and facilitate blood flow [21]. ET has the opposite effect. It constricts blood vessels and promotes smooth muscle cell proliferation and cell adhesion [22]. Statins can restore endothelial dysfunction caused by hyperlipidemia through regulating the levels of the above two vascular endothelial factors, improving the clinical symptoms of patients. In this paper, the comparison of cardiac function between the two groups showed that rosuvastatin had a positive significance in improving cardiac function in the long term. It was analyzed that rosuvastatin could improve the process of atherosclerosis and stabilize or reduce atherosclerotic plaques in patients by improving vascular endothelial function [23]. The comparison of the incidence of adverse reactions between the two groups showed that rosuvastatin was safer.

In summarizing, risuvastatin can reduce blood lipid levels and improve blood rheology and cardiac function in patients with coronary artery disease combined with hyperlipidemia. This may be related to the ability of the drug to regulate vascular endothelial function in patients.

Disclosure of conflict of interest

None.

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