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Analysis of the Value of Elojumab in Patients with Acute Coronary Syndrome after Percutaneous Coronary Intervention

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Abstract: ***Objective:*** To analyze the application value of Elouzumab in patients with acute coronary syndrome (ACS) after percutaneous coronary intervention (PCI), so as to lay a foundation for the follow-up treatment. ***Methods:*** 84 ACS patients who underwent PCI in our hospital from December 1, 2018 to December 1, 2019 were selected and divided into control group (n = 42) and study group (n = 42) according to the random number table. The control group was treated with statins, and the study group was treated with alloxan combined therapy. The changes of blood lipid index, quality of life score, adverse cardiovascular and cerebrovascular events and adverse reactions were compared before and after treatment. ***Results:*** There was no significant difference in TCHO, TG, HDL-C and LDL-C between the two groups before treatment (P>0.05);After treatment, the levels of TCHO, TG, HDL-C and LDL-C in the study group were significantly lower than those in the control group (P<0.05);There was no significant difference in the scores of WHOQOL-BREF before treatment (P>0.05);After treatment, the WHOQOL-BREF scores of the two groups were improved, and the study group was significantly higher than the control group (P<0.05);The incidence of adverse cardiovascular and cerebrovascular events and adverse reactions in the study group was lower than that in the control group, but the difference was not statistically significant (P>0.05). ***Conclusion:*** After percutaneous coronary intervention in patients with acute coronary syndrome, the use of Elojumab can effectively reduce the blood lipid index, improve the quality of patients and reduce the incidence of adverse cardiovascular and cerebrovascular events and adverse reactions, which can be effectively promoted in clinical practice.

Keywords: Acute coronary syndrome; Percutaneous coronary intervention; Evolocumab; Application value

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Acute coronary syndrome (ACS) is a common and serious cardiovascular disease, which causes tens of millions of deaths every year. This kind of disease not only seriously affects the quality of life of patients, but also has a heavy economic burden[1]. PCI is a kind of treatment method to dredge the narrow or even occluded coronary artery lumen through cardiac catheterization technology, so as to improve the myocardial blood perfusion. The instability of coronary atherosclerotic plate is the fundamental factor leading to ACS, so how to effectively avoid the formation of sclerotic plate is very important[2]. As a new type of lipid-lowering drug, Elojumab has achieved certain effect in the treatment of ACS after PCI. In this paper, the therapeutic effect of Elojumab is analyzed in all aspects. The specific reports are as follows:

1 Material and methods

1.1 General information

84 ACS patients who underwent PCI in our hospital from December 1, 2018 to December 1, 2019 were selected and divided into control group (n = 42) and study group (n = 42) according to the random number table. There were 22 males and 20 females in the study group, aged 50-76 years, with an average age of (59.35 ± 7.30), body mass index (BMI) of 18.6-29.6 kg/m^2 and an average of (22.21 ± 2.12) kg / m^2;There were 21 males and 21 females in the control group, aged 50-77 years, with an average age of (61.94 ± 7.50), body mass index (BMI) of 18.5-29.9kg/m2, and an average of (22.55 ± 2.31) kg/m^2;There was no significant difference in age, gender and BMI between the two groups (P>0.05).

1.2 Inclusion and exclusion

1.2.1 Inclusion criteria

(1) The patient's condition met the diagnostic criteria of ACS, and PCI was performed[3]; (2) The family members' informed consent and signed the informed consent of this test voluntarily.

1.2.2 Inclusion criteria

(1) The patients had allergic reactions to the drugs used in this study; (2) The patient has severe heart, liver and other important organ diseases; (3) The patients had allergic reactions to the drugs used in this study; (4) Patients with mental illness can not effectively cooperate with this follow-up treatment.

1.3 Treatment method

The patients in the two groups were treated with percutaneous coronary intervention after admission, and the data of the patients were recorded in detail for further study.

1.3.1 Control group

In the control group, atorvastatin (Manufacturer:Beijing Jialin Pharmaceutical Co., Ltd., GYZZ:H20093819, 20 mg/tablet), once a day, two tablets at a time, one month as a course of treatment.

1.3.2 Research group

In the control group, atorvastatin (Manufacturer:Mgen Manufacturing Limited (AML), GYZZ:J20150066, 1ml: 140 mg), once every two weeks, one for each time, three for a course of treatment.

1.4 Observation index and efficacy evaluation

(1) Changes of blood lipid indexes before and after treatment:Total cholesterol (TCHO), triglyceride (TG), high density lipoprotein cholesterol (HDL-C), low density lipoprotein cholesterol (LDL-C)[4]; (2) Changes in quality of life scores: The WHOQOL-BREF scale[5] was used for evaluation at the time of admission and 3 months after treatment. It was evaluated from four aspects of physiology, psychology, social relations and environment. It was a 5-level scoring system; (3) Adverse cardiovascular and cerebrovascular events and adverse reactions: The incidence of myocardial infarction, angina, bleeding and dyspnea. Incidence = number of cases / total cases * 100%.

1.5 Statistical methods

All the data in this study were calculated by SPSS 19.0 statistical software, the measurement data were expressed by $\bar{x} \pm s$, the independent sample t test was used for inter group comparison, the count data was expressed by% and the χ^2 test was used for inter group comparison, with P<0.05 being statistically significant.

2 Results

2.1 Changes of blood lipid indexes before and after treatment

There was no significant difference in TCHO, TG, HDL-C and LDL-C between the two groups before treatment (P>0.05);After treatment, the levels of TCHO, TG, HDL-C and LDL-C in the two groups were significantly decreased, and the decrease in the study group was significantly better than that in the control group (P<0.05).See Table 1.

Table 1. Changes of blood lipid before and after treatment in two groups ($\bar{x} \pm s$, mmol/L)

Group	Number of cases	TCHO(mg/L)		TG(ng/L)		LDL-C(ng/L)		HDL-C(mg/L)	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Control group	42	5.96±0.95	3.87±0.67	2.88±0.79	2.24±0.53	1.39±0.19	1.24±0.13	3.76±1.25	1.95±0.97
Study Group	42	5.95±0.94	2.68±0.61	2.92±0.81	2.01±0.32	1.36±0.16	1.11±0.14	3.75±1.43	1.52±0.81
t	-	0.048	8.511	0.229	2.408	0.783	4.410	0.034	2.205
P	-	0.961	0.000	0.819	0.018	0.436	0.000	0.973	0.030

2.2 WHOQOL-BREF score of quality of life in the two groups

There was no significant difference in the scores of WHOQOL-BREF before treatment (P>0.05); After treatment, the WHOQOL-BREF scores of the two groups were improved, and the study group was significantly higher than the control group (P<0.05). See Table 2.

Table 2. WHOQOL-BREF scores of the two groups (points) $\bar{x} \pm s$

Group	Number of cases	Physiology		Psychology		Social relations		Environmental Science	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Study Group	42	61.22±6.10	73.95±10.11	55.86±9.21	73.54±10.33	57.32 ±7.05	69.11±8.33	72.92±8.32	80.38±9.87
Control group	42	61.43±6.24	63.28 ±5.57	56.21±9.30	62.52±10.22	57.55 ±7.09	63.10±8.34	72.85±7.99	75.22±6.98
t		0.156	5.991	0.174	4.915	0.149	3.304	0.039	2.766
P		0.876	0.000	0.863	0.000	0.882	0.001	0.969	0.007

2.3 Adverse cardiovascular and cerebrovascular events and adverse reactions in two Groups

The incidence of adverse cardiovascular and cerebrovascular events and adverse reactions in the study group was lower than that in the control group, but the difference was not statistically significant (P>0.05). See Table 3.

Table 3. Adverse cardiovascular and cerebrovascular events and adverse reactions in two Groups

Group	Number of cases	Adverse cardiovascular and cerebrovascular events			Occurrence of adverse reactions		
		Acute myocardial infarction	Angina pectoris	Incidence rate	Hemorrhage	Dyspnea	Incidence rate
Control group	42	2(4.76%)	3(4.76%)	5(4.76%)	1(4.76%)	3(4.76%)	4(4.76%)
Study Group	42	1(2.38%)	1(2.38%)	1(2.38%)	0(0.00%)	1(2.38%)	1(2.38%)
t		-	-	5.403	-	-	1.914
P		-	-	0.236	-	-	0.167

3 Discussion

ACS is an important cause of cardiovascular disease death. Although the survival rate of ACS patients after hospitalization has improved, early readmission is still common, and some patients need to be hospitalized for treatment many times[6].The vast majority of ACS is due to the instability of coronary atherosclerotic plate, and abnormal lipid metabolism is the most important risk factor of atherosclerosis[7]. The readmission rate of 30 days after PCI for acute coronary syndrome in China is 8%-17.9%, which is mainly due to cardiovascular reasons. Therefore, effective blood lipid control after PCI is an important factor to prevent patients from relapse and readmission.

At present, most of the clinical lipid-lowering drugs are statins, which are 3-light-3-methylglutaryl coenzyme A reductase inhibitors. They mainly affect the synthesis of cholesterol by inhibiting the activity of the rate limiting enzyme of cholesterol synthesis, so as to achieve the effect of lipid-lowering. According to the current application, it has certain effect, but there are still problems such as recurrence rate[8]. Elouzumab is an inhibitor of Pro protein evertase subtilisin/Kexin 9 (PCSK9), a human monoclonal immunoglobulin G2 (IgG2), with a molecular weight (MW) of about 144kda, produced by transgenic mammalian cells[9-11]. As a new generation of lipid-lowering drugs, it can target and bind to low-density lipoprotein receptor (LDLR) to participate in the process of lipid metabolism. By binding with LDLR in liver cells, and internalizing

it to lysosomal degradation, it can weaken the ability of liver to metabolize LDLC and up regulate the level of LDLC[12]. However, iloximab can specifically combine with PCSK9 to block its combination with LDLR, so as to improve the clearance rate of LDLC and reduce its level[13]. Its clinical value in high-intensity lipid-lowering and reducing the risk of cardiovascular events has been widely confirmed[14].

It can be seen from the results of this study that after the treatment, the blood lipid indexes of the two groups were improved, such as TCHO, TG, HDL-C and LDL-C, but the improvement was more significant after the use of Elojumab, which effectively reduced the incidence of adverse cardiovascular and cerebrovascular events and adverse reactions. This shows that this medicine has a good effect on the decrease of blood lipid, which is consistent with the results of previous studies. After the improvement of blood lipid, all the WHOQOL-BREF scores were improved, indicating that the quality of life of the patients was effectively improved. In conclusion, the use of Elojumab in patients with acute coronary syndrome after percutaneous coronary intervention can effectively reduce the blood lipid index, improve the quality of patients and reduce the incidence of adverse cardiovascular and cerebrovascular events and adverse reactions, which can be widely used.But at the same time, it should be noted that the number of samples taken in this study is limited, and the dialectical use of patients' actual situation should be fully considered in practical application.

Reference

[1] Qi BL. PCSK9 inhibitor, a new type of lipid-lowering drug (iloximab)[J]. Journal of new medical knowledge, 2019, 29(3): 310-311.

[2] Chen YH. Effect of PCSK9 inhibitor on hypercholesterolemia[J]. Nephron Clinical Practice, 2018, 13(2): 10-12.

[3] Shen L, Zhao ZP. Research status of PCSK9 inhibitors[J]. Chinese Journal of internal medicine, 2019, 52(7): 607-608

[4] Qian JY, Wang Z. PCSK9 inhibitor, a new star in the field of lipid reduction[J]. Journal of clinical cardiovascular disease, 2017, 33(9): 821-824.

[5] Fan M. Evolocumab, an inhibitor of PCSK9, showed positive results in phase II clinical study[J]. Pharmaceutical progress, March 11, 2019: 12-14.

[6] Jiang K, Zhang DQ. Clinical research progress of inhibitors in atherosclerotic cardiovascular disease[J]. Practical medicine and clinic, 2019, 20(5): 598-602.

[7] Do RQ , Vogel RA , Schwartz GG. PCSK9 Inhibitors: Potential in Cardiovascular Therapeutics[J]. Current Cardiology Reports, 2018, 15(3): 345.

[8] Tang QZ, Zhang XP, Chen XZ, et al. Effect of salvianolic acid salt combined with atorvastatin on vascular endothelial function and inflammatory factors in elderly patients with acute coronary syndrome after percutaneous coronary intervention[J]. Chin J Interventional Cardiology, 2019, 023(005): 282-285.

[9] Jiang YM, Zu DL, Cheng KY, et al. Evaluation of quality of life after percutaneous coronary intervention for acute coronary syndrome[J]. Chinese Journal of cardiovascular disease, 2018, 36(2): 172-173.

[10] Zhang RY, Yang XS, Zheng WQ, et al. Effects of rosuvastatin intensive treatment on blood lipid, inflammatory cytokines and prognosis of patients with acute coronary syndrome after percutaneous coronary intervention[J]. Shanghai medicine, 2018, 39(7): 391-395.

[11] Yang LF, Lv JY, Jia YP. Effect of percutaneous coronary intervention on endothelial function in patients with acute coronary syndrome[J]. Chinese Journal of arteriosclerosis, 2018, 13(4): 487-490.

[12] Seidah NG. Proprotein Convertase Subtilisin Kexin 9 (PCSK9) Inhibitors in the Treatment of Hypercholesterolemia and other Pathologies[J]. Current Pharmaceutical Design, 2019, 19(17): 3161-3172.

[13] Li FJ, Wang XY, Du ML, et al. Changes and significance of serum inflammatory markers in patients with acute coronary syndrome after percutaneous coronary intervention[J]. Journal of clinical internal medicine, 2019, 33(3): 178-180.

[14] Li Y. Research status and progress of PCSK9 inhibitors[J]. Yanbian medicine, 2018, 10(15): 279-280.