

# Clinical value of anticoagulant combined with atorvastatin calcium in the treatment of cerebral infarction

**Objective:** To analyze the clinical effect of anticoagulant combined with atorvastatin calcium in the treatment of cerebral infarction.

**Methods:** 84 patients with cerebral infarction were randomly divided into the observation group and the control group. The control group was treated with aspirin and low molecular weight heparin sodium. The observation group was treated with atorvastatin calcium on the basis of the control group, and the NHISS (National Institute Healthstroke scale) score (nerve function defect score) and serum CRP (Cost Reduction Program) (C inverse) were compared before and after the treatment in the two groups. The concentration change and total efficiency of the protein).

**Results:** Before treatment, there was no significant difference between the two groups of patients' NHISS score and serum CRP concentration ( $P > 0.05$ ). After treatment, the NHISS score and serum CRP concentration in the observation group were significantly different from those in the control group ( $P < 0.05$ ), and the total effective rate of the observation group and the control group was 88.10% and 61.90% separately. The difference is significant ( $P < 0.05$ ).

**Conclusion:** Aspirin, low molecular heparin sodium combined with atorvastatin calcium has significant clinical effect in the treatment of cerebral infarction.

**Keywords:** aspirin • low molecular weight heparin sodium • atorvastatin calcium • cerebral infarction • serum CRP concentration

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## Introduction

Cerebral Infarction [1] (CI) usually refers to ischemic stroke. It refers to the sudden interruption of blood flow in the local artery of the brain or the decrease of blood flow perfusion, which leads to cerebral ischemia and hypoxia to the tissue necrosis and softening of the blood supply area. It is the brain blood supply disorder that causes brain lesions, and the symptoms of the bed are characterized by anemic numbness of hand and foot sensation. Muscle weakness, movement disorders, unclear language, etc [2,3]. The proportion of cerebrovascular disease is 75% [4], which is frequently occurring, and is more common in middle-aged and elderly people. The rate of disability and death rate of cerebral infarction is high. If the patient cannot be given effective drug therapy in time to promote the brain tissue

oxygen supply and blood supply recovery, the patient is prone to leave serious sequelae, or death. In recent years, it is proved that the increase of blood pressure in acute cerebral infarction patients can have protective effect on brain tissue, and the treatment of lowering blood pressure in acute stage will not be beneficial to the recovery of brain function and cerebral blood flow [5]. This article mainly studied the application effect of aspirin, low molecular heparin sodium combined with atorvastatin calcium in the treatment of cerebral infarction.

## Data and methods

### Clinical data

Collect 84 cases of cerebral infarction treated in our hospital from January 2016 to June 2017, and randomly divide them into observation group and control group. There were 22 male and 20 women in the observation group,

aged 43 ~ 82 years ( $63.25 \pm 2.11$ ) years old, with 37 cases of hypertension, 5 cases of diabetes, 2 cases of coronary heart disease and 18 hyperlipidemia. In the control group, there were 23 males and 19 females, aged 44 ~ 82 years, with an average age of ( $63.26 \pm 2.09$ ) years, with 38 cases of hypertension, 4 diabetes, 2 coronary heart disease and 19 hyperlipidemia. There was no significant difference in clinical data between the two groups ( $P > 0.05$ ).

#### Inclusion criteria and exclusion criteria [6]

**Inclusion criteria:** All patients came to the hospital within 72 h after onset, and were confirmed by cranial CT or MRI. This study has been approved by the hospital ethics committee, and the patients or their family members have signed the informed consent form.

**Exclusion criteria:** 1) Patients with cerebral hemorrhage and other diseases. 2) Patients with cardiogenic cerebral embolism. 3) Patients with active ulcers or those who have recently undergone surgery, visceral bleeding and trauma. 4) Patients receiving platelet function drugs or those taking anticoagulant drugs in the near future. 5) Not willing to participate in the study of the patients.

#### Method

The two groups were treated with basic disease after admission to adjust the blood pressure, blood sugar and blood lipid level, and give the anti-oxygen free radical and dilated cerebrovascular treatment. The control group was treated with aspirin and low molecular weight heparin sodium, intravenous infusion of enteric aspirin is 0.3 g, and 0.1 g after 7 d, one time once, and 0.4 mL low-molecular-weight heparin sodium subcutaneous injection, 2 times a day, and 7 d continuously. On the basis of the control group, the observation group was given clopidogrel, 75 mg/day orally, atorvastatin calcium, 20 mg per day. The two groups were evaluated after 6 months of continuous medication.

#### Observation index

The NHISS score and serum CRP concentration of the two groups before and after treatment were observed in detail. According to the clinical neurological deficit score standard

[7], the therapeutic effect of the patients was evaluated. The higher the NHISS score, the more serious the neurological deficit

#### Curative effect judgment [8]

The NHISS score of the patient was reduced by 91% ~ 100% and the degree of disability was grade 0. The score was reduced by 46% ~ 90%, the degree of disability was 1 ~ 3, a significant progress; the score was reduced by 18% ~ 45%, the progress was reduced; the score reduction was less than 17%, or the deterioration or death, which was null and void. Total effective rate = (basic cure + significant progress ± progress) / case number 100%.

#### Statistical analysis

The data were statistically analyzed with SPSS 19.5, the measurement data were expressed with ( $\bar{x} \pm s$ ) and t test, and the count data were expressed with (%) and  $\chi^2$  was tested with  $P < 0.05$  as statistical significance.

#### Results

##### The changes of NHISS score and serum CRP concentration in the two groups before and after treatment

Before treatment, the NHISS score of the observation group was ( $24.78 \pm 2.67$ ), the serum CRP concentration was ( $7.02 \pm 0.51$ ) mg/L, the NHISS score of the control group was ( $24.82 \pm 1.54$ ), the serum CRP concentration was ( $7.01 \pm 0.48$ ) mg/L, and the two groups of patients were scored in the NHISS score and blood. There was no significant difference in the concentration of CRP ( $t = 0.036, 0.035, P = 0.972, 0.973$ ). After treatment, the NHISS score of the observation group was ( $7.29 \pm 0.67$ ), and the serum CRP concentration was ( $3.47 \pm 0.74$ ) mg/L; the NHISS score of the control group was ( $14.73 \pm 1.43$ ), and the serum CRP concentration was ( $7.01 \pm 0.32$ ) mg/L, and the NHISS score in the observation group. The serum CRP concentration was better than that of the control group, and the difference was significant ( $t = 11.530, 8.211, P = 0.000, 0.000$ ) (TABLE 1).

##### The comparison of the clinical treatment effect of the two groups

18 cases were basically healed in the observation group, 14 cases were remarkable progress, 5 cases were progresses, 5 cases were invalid, the total effective rate was

88.10%; the control group basically healed 6 cases, significant progress 13 cases, 7 progress, 16 cases, the total effective rate was 61.90%, the difference of data was significant ( $\chi^2 = 7.68$ ,  $P = 0.006$ ) (TABLE 2).

## Discussion

Cerebral infarction is a common cerebrovascular disease that causes disability or death in middle-aged and old people. Atherosclerotic plaques are the main risk factors for the disease. The patient's brain tissue is in a state of hypoxia and ischemia for a long time. It can cause brain tissue necrosis and damage the nerve function. The prognosis is not good [9]. It is an important content to improve the prognosis of the brain tissue in short time to improve the brain tissue hypoxia and ischemia.

Anticoagulant therapy is commonly used for treatment of cerebral infarction. Commonly used drugs include enteric coated aspirin and low molecular heparin sodium. Enteric aspirin can stimulate the acetylation of the inner ring oxygenase of platelets, reduce the synthesis of thromboxane A<sub>2</sub>, and play an irreversible inhibitory effect on the platelet aggregation induced by the thrombolytic enzyme, inhibit the formation of thrombus, and promote thrombus dissolution. Low molecular weight heparin is an unfractionated heparin obtained by decomposition, concentration and purification of nitrite. It has strong anti A and weak antithrombin. Atorvastatin is a common drug for clinical antioxidation and oxygen free radical damage. It can reduce the inflammatory response of brain tissue in patients with cerebral infarction, reduce the

degree of brain edema and protect the local brain tissue. In addition, atorvastatin can also inhibit the neurotoxicity of nitric oxide and improve the degree of neurotoxicity of the patients; atrovastatin calcium is a kind of light methylglutaric acid monosol coenzyme A reductase inhibitor, which can effectively improve the patient's high density lipoprotein. It has a good antagonism in the atherosclerosis caused by hypercholesterolemia and low density lipoprotein. It can reduce the concentration of plasma CRP, play the anti-inflammatory effect of the drug, and can also be used in a certain course. The degree of tumor necrosis factor alpha, interleukin -6 and other inflammatory factors were reduced [10,11]. The combined effect of atorvastatin calcium and anticoagulant drugs in the treatment of cerebral infarction, the synergistic effect of drugs is ideal, can further improve the drug resistance to platelet aggregation, regulate blood viscosity, prevent thrombus formation, and thus effectively improve the effect of drug treatment, and promote the recovery of nerve function injury in patients with good effect. In this study, after treatment, the NHISS score and serum CRP concentration in the observation group were lower than those in the control group. The total effective rate of treatment was higher than that of the control group, the difference was significant ( $P < 0.05$ ).

To sum up, the combination of anticoagulant and atorvastatin calcium in the treatment of cerebral infarction can effectively reduce the serum CRP concentration, reduce the degree of neural function defect, the curative effect

**Table 1. The changes of NHISS score and serum CRP concentration in the two groups before and after treatment**

		NHISS score	CRP concentration (mg/L)	t	P
Before treatment	Observation group	24.78 ± 2.67	7.02 ± 0.51	0.036	0.972
	Control group	24.82 ± 1.54	7.01 ± 0.48	0.035	0.973
After treatment	Observation group	7.29 ± 0.67	3.47 ± 0.74	11.530	0.000
	Control group	14.73 ± 1.43	7.01 ± 0.32	8.211	0.000

**Table 2. The comparison of the clinical treatment effect of the two groups**

	Basic healing	Significant progress	Progress	Invalid	Total effective rate	X <sup>2</sup>	P
Observation group	18	14	5	5	88.10%	7.68	0.006
Control group	6	13	7	16	61.90%		

is accurate, and the clinical value is high.

### Ethical consent and informed consent of patients

Written informed consent was obtained for each participant according to federal and institutional guidelines.

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