Analysis of Cardiovascular Therapy for Acute Myocardial Infarction Based on Pathological Stage

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Abstract: Objective: To analyze and discuss the cardiovascular medical treatment of acute myocardial infarction in pathological stage. Methods: 35 patients with acute myocardial infarction in cardiovascular medicine department of A hospital from May 2018 to December 2018 were studied. On the basis of patients' consent, the patients were treated and nursed, and the clinical effects were observed and analyzed. The experimental group was treated with urokinase on the basis of basic treatment, while the control group was treated with routine clinical medicine only. The clinical effects of the two groups were compared. RESULTS: During the treatment period, there were no adverse complications such as shock, heart failure and malignant arrhythmia in the two groups. The effective number of the experimental group and the control group were 23 and 19 respectively, and the effective number was 10 and 8 respectively. For the 2 and 8 cases, the overall effective experimental group was 94.28%, and the total effective rate of the control group was 77.14%, which was significantly higher than that of the control group (17.14%) ($P<0.05$).Conclusion: In the treatment of patients with acute myocardial infarction, urokinase treatment can be used, the curative effect is significant, and it can also reduce the incidence of adverse reactions, promote patient recovery and improve prognosis.

1. Introduction

Acute myocardial infarction is a sudden disease. The clinical manifestations of acute myocardial infarction are arrhythmia, hypotension, unconsciousness and other symptoms, which will cause great damage to people's health. The common clinical symptoms are severe and lasting retrosternal pain, rest and nitric acid and vinegar drugs can not completely alleviate, accompanied by increased serum myocardial enzyme activity and progressive electrocardiogram changes, which can be accompanied by arrhythmia, shock or heart failure, often endangering life [1]. The predisposing factors were first penetrating myocardial infarction, no history of angina pectoris and heart failure, old age, history of excessive fatigue and mental stimulation, use of thrombolytic agents and anticoagulants. Its occurrence has adverse effects on the short-term and long-term prognosis of myocardial infarction, which can lead to acute coronary syndrome such as re-infarction and arrhythmia, and the therapeutic effect is poor [2]. Thrombosis pathological can be divided into red blood cell-based thrombus (red thrombus), platelet-and cellulose-based thrombus (white thrombus) and mixed thrombus (red fine cells are similar to platelet and fibrinogen content) [3]. The hemodynamic fluctuations accompanying perioperative period often become the triggering factor of myocardial infarction, which is one of the main causes of clinical anesthesia and surgical death. Clinically, AMI often has complications, and the condition is recurrent or aggravated. Most patients have incentives. Therefore, it is very important to treat these predisposing factors and prevent and care for the cure of AMI [4].

Myocardial infarction within 6 hours is the best time for thrombolytic rescue. Therefore, patients should be asked for detailed and simple medical history immediately after admission in order to help doctors determine whether thrombolytic therapy is given to patients in the shortest time [5]. Urokinase for injection plays a thrombolytic role by directly acting on endogenous fibrinolysis system, catalyzing the lysis of plasminogen into fibrinolytic enzyme, and then degrading fibrin clots. At the same time, urokinase can also improve the activity of ADP in blood vessels, inhibit the aggregation of platelets induced by ADP enzyme, and prevent thrombosis [6]. pathological,

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coronary vasospasm is an important factor leading to the occurrence and aggravation of acute myocardial infarction, and its incidence rate accounts for 6.8% ~ 35.0% of all myocardial infarction, generally about 10.0%. pathological suggests that residual thrombi fragments in distal lumen of anterior descending branch and large amount of endothelial cells in capillaries may be pathological evidence for thrombolytic recanalization. Myocardial reperfusion after recanalization will also increase the possibility of cardiac rupture. In addition, this patient also has other risk factors that easily lead to rupture [7]. Negative emotions excite the sympathetic nerves, causing an increase in heart rate, vasoconstriction, and elevated blood pressure, which further reduce oxygen supply and blood supply to the coronary arteries, and expand the range of myocardial necrosis. At the same time, it can also cause the decomposition of fat and glycogen, increase the fat content in the blood, and aggravate arteriosclerosis. Maintaining a good psychological state and reducing the occurrence of complications can promote the healing of the disease. Therefore, it is important to explore and analyze the pathogenesis, pathological features and treatment of post-infarction angina pectoris to prevent complications, improve treatment effect and reduce mortality [8].

2. Materials and Methods

2.1 Clinical data

In this paper, 35 patients with acute myocardial infarction in cardiovascular medicine department of A hospital from May 2018 to December 2018 were selected and studied. On the basis of patients'consent, the patients were treated and nursed. The clinical therapeutic effect was observed and analyzed, excluding other cardiac diseases, severe neurosis, climacteric syndrome, hyperthyroidism, cervical spondylosis, gallbladder heart disease and so on. Chest pain caused by severe hypertension, cardiac insufficiency, arrhythmia, liver and kidney hematopoietic system and other serious primary diseases. Patients with myocardial infarction included anterior wall infarction, inferior wall infarction, and inferior wall plus posterior wall infarction. When examining the clinical manifestations of the patient, the patient was found to have symptoms such as chest tightness and shortness of breath.

2.2 Method

Patients in the control group were treated with basic therapy. If there were no obvious contraindications, β receptor blockers could be given. If there were contraindications for β receptor blockers, calcium channel blockers such as diltiazem or verapamil could be given. For patients without hypotension or shock, angiotensin transaminase inhibitor can be given. In the experimental group, 1 million units of urokinase were dissolved in 10 mL of normal saline, and then 100 ml of 5% glucose injection was added for intravenous drip. The drip was completed within 30 min. Combined with the actual situation of the patient, the sedative, analgesic, dilated coronary artery and other treatment options are given. The patient is examined systematically, and health education and psychological counseling are given to strengthen communication and introduce the patient to the treatment plan and expected results. The patient's blood sample is collected for testing the blood type, blood routine, myocardial zymogram, clotting time, platelet count, and the like. Take effective ways to communicate and communicate with patients, explain in detail the relevant knowledge and treatment methods and effects of the disease, and inform patients of prognosis and adverse reactions so that patients can be psychologically prepared. If there are conditions, the case of successful treatment of the disease can be made on the spot.

3. Results

Myocardial infarction is mainly left ventricular disease, but can extend to the right ventricle or atrium. Right ventricular infarction is often caused by right coronary artery or dominant left circumflex branch occlusion, characterized by right ventricular filling pressure. Acute myocardial infarction (AMI) is caused by a large part of emotional factors. Therefore, medical staff must strengthen the psychological nursing of AMI: medical staff must be stable, light, accurate,

standardized and skilled in all kinds of nursing operations, in order to make patients feel safe and reliable. The main nursing methods are routine nursing, psychological nursing and post-treatment nursing. During the treatment period, there were no adverse complications such as shock, heart failure and malignant arrhythmia in the two groups. The effective number of the experimental group and the control group were 23 and 19 respectively, the effective number was 10 and 8 respectively, and the invalid number was 2 respectively. In 8 cases, the overall effective experimental group was 94.28%, and the total effective rate of the control group was 77.14%, which was significantly higher than that of the control group (17.14%, $P<0.05$).As shown in Table 1.

Table 1 The comparison of curative effect between the two groups (%)

	Number of cases	Markedly effective	Effective	Invalid	Total effective
Experience group	35	23	10	2	33
control group	35	19	8	8	27

4. Discussion

Acute myocardial infarction (AMI) is mainly caused by acute and persistent decrease of blood flow in coronary artery for various reasons, which leads to myocardial ischemia and hypoxia, and ultimately leads to myocardial ischemia and necrosis in corresponding parts. The main clinical manifestation of AMI is persistent pain after sternum. Emergency direct PCI is the most effective and preferred reperfusion therapy for acute myocardial infarction. Promote angiogenesis and angiogenesis in infarcted myocardium. Vasculogenic cells derived from human bone marrow were extracted and injected into the damaged heart of rats with myocardial infarction. It was confirmed that new blood vessels, namely angiogenesis, were produced in the damaged area, and new branches of nearby blood vessels, namely angiogenesis, were formed, which played a role in preventing the death of myocardial cells and reducing remodeling.Changes in heart size, morphology, tissue structure and functional state, i.e. ventricular remodeling, will occur after AMI. It is an important pathological process of myocardial infarction developing into heart failure and runs through the whole course of the disease, becoming one of the main reasons affecting the short-term and long-term prognosis of AMI. Lesion is a valuable sign of myocardial ischemic damage in the early stage. Isolated small lesions with uneven texture often appear in several segments of a muscle fiber, and the lesions can gradually merge into one piece in the future. For patients undergoing mitral valve, aortic valve and tricuspid valve replacement, the mortality rate of patients is relatively high. The main reason for this phenomenon is that the left heart function of patients is relatively poor, resulting in low cardiac output and kidney injury during operation, causing renal failure of patients. Therefore, myocardial protection of patients should be implemented during operation. At the same time, we should be patient and considerate in caring for and comforting patients, helping them to establish confidence in overcoming the disease and establishing confidence in treatment with patients. Accompanied by routine care, psychological care and post-treatment care, ECG is used to effectively monitor the changes of patients' heart rhythm and record the changes of patients' condition. Through observation, the recovery speed of patients is faster. After receiving care, patients not only have greatly improved their physical recovery, but also have changed their psychological status, thus accelerating the recovery speed of patients.

The main pathological bases leading to acute myocardial infarction are: (1) Coronary stenosis caused by atherosclerosis is the main pathological basis leading to acute myocardial infarction; (2) Thrombosis in Coronary Artery: Based on severe stenosis of coronary artery, blood is mainly formed in a branch of related coronary artery due to vascular endothelial injury and unstable atherosclerotic plaque rupture. Decreased coronary blood flow not only reduces myocardial oxygen supply, but also reduces the clearance of myocardial metabolic end products. This state is called myocardial ischemia. When myocardial oxygen supply is reduced but coronary blood flow is not reduced at the same time, myocardial metabolic end products can still be effectively

eliminated. According to the reduction or complete disappearance of oxygen content in coronary blood flow, it is called myocardial hypoxia or anaerobic respectively. Mitotic proliferating cells appeared in myocardial tissue sections of the control group. It may be that myocardial infarction itself is a stimulating factor that promotes the recruitment of autologous bone marrow stem cells to myocardial infarction, and a small amount of stem cells differentiate into myocardial cells or vascular endothelial cells to repair myocardial infarction. The reason for the increased signal of diseased myocardium is generally believed to be caused by the increased myocardial water content caused by interstitial edema of diseased myocardium and increased vascular wall permeability, and there is a clear linear relationship between the two. The ultrastructural changes of myocardial ischemia-reperfusion injury under pathological are basically the same as those of simple myocardial ischemia, but the degree is more serious. It is characterized by partial loss of basement membrane, destruction of plasma membrane, and rapid expansion of damage to whole cells. The muscle fiber structure is destroyed, severe shrinkage band or filament breakage, dissolution, mitochondrial swelling, sputum breakage, dissolution, vacuolization, and dense matter in the matrix. If there is a weak fibrous cap structure in the plaque, a large soft lipid nucleus accumulates a large number of inflammation and macrophages, it is considered to be unstable plaque, when the vascular tone and hemodynamics change, especially local inflammation in the plaque. Plaque rupture and thrombosis occur when cells infiltrate and systemic inflammatory reactions. Stitching the artificial valve on the right atrium wall outside the coronary sinus can effectively prevent the occurrence of conduction block, and the tricuspid valve replacement after the patient's heart retracement can greatly shorten the time of cardiac arrest and make the myocardium The incidence of injury is also reduced.

Contact patients more, explain disease knowledge to them, explain the adverse emotions and psychology to the disease, encourage patients to build up confidence to overcome the disease, and cooperate with medical staff to do a good job of treatment. Secondly, we should talk with patients more, understand each patient's personality and habits in detail, and give different psychological counseling for different personality. Help patients to better solve the various problems encountered in the process of fighting against the disease. At present, most hospitals have integrated psychological intervention into holistic nursing, making it an important part of holistic nursing. Combining psychological intervention with clinical medicine can greatly improve the efficiency of clinical cure of diseases. Combined with the actual situation of patients, nitrate drugs and angiotensin converting enzyme inhibitors were given. Meanwhile, during the whole treatment process, the vital signs of patients were monitored, adverse reactions were found in time, and corresponding treatment measures were given to avoid the deterioration of patients'condition. Urokinase can dissolve endogenous fibrin, catalyze the lysis of plasminogen to fibrinolytic enzyme, degrade fibrin clots, and play a thrombolytic role; it can enhance the activity of ADP enzyme in blood vessels, reduce platelet aggregation and reduce the risk of thrombosis. Pathological changes include hypertrophy and apoptosis of myocardial cells, re-expression of embryonic genes and proteins, changes in the amount and composition of myocardial extracellular matrix, etc. Clinical manifestations include myocardial quality, increase of cardiac chamber volume, occurrence of ventricular arrhythmia, and decrease of cardiac function. Cell death under gene control also exists in the myocardial ischemia-reperfusion injury process, suggesting that apoptosis-related genes may participate in the regulation of this process and may become the origin of various injury factors, such as oxygen free radicals and calcium overload. The duration of ischemia is the decisive factor for the reversibility of myocardial injury. Pathological analysis showed that mitochondrial body density and number density were significantly reduced in infarct and ischemic areas compared with normal areas, while infarct areas were significantly reduced compared with ischemic areas. The body density of each area was closely related to number density and myocardial blood flow. In order to maintain myocardial viability, there must be sufficient energy supply and blood flow supply, and myocardial microvasculature is the channel to maintain blood flow supply.

5. Conclusion

In this paper, the analysis of cardiovascular medical treatment of acute myocardial infarction

based on pathological stages was studied. Acute myocardial infarction is an acute ischemic heart disease characterized by sudden complete occlusion of coronary artery, ischemia, injury and necrosis of myocardium, severe chest pain, electrocardiogram and dynamic changes of myocardial enzymes. The disease is of acute onset, high mortality, disability rate and poor prognosis, which attracts much attention of clinicians and researchers. Pathological changes, in addition, stenosis of various types of aortic orifice, severe aortic valve insufficiency, tachyarrhythmia, and severe hypotensive reactions can lead to a significant reduction in coronary perfusion, which can also be a cause of acute myocardial infarction. For patients with cardiovascular disease in acute myocardial infarction, it is necessary to take scientific clinical treatment methods and comprehensively treat patients to ensure the safety of patients. Arterial blood oxygen tension is inversely proportional to pulmonary artery diastolic blood pressure, often suggesting pulmonary edema caused by elevated hydrostatic pressure of the pulmonary capillaries. The latter often compresses small arteries and small bronchi, resulting in a mismatch between ventilation and blood flow, resulting in low Oxygenemia. Emphasis should be placed on the use of receptor blockers and angiotensin-converting enzyme inhibitors. Even if reperfusion is successful, monitoring should be strengthened. Early detection of ECG separation may win valuable treatment opportunities. In the standardized treatment of cardiovascular medicine, the use of urokinase in the treatment of acute myocardial infarction is effective, can reduce the number of episodes of angina pectoris, dissolve small thrombus in the coronary artery and its small branches, reduce coronary stenosis and myocardial ischemia, for prevention and prevention Treatment of reinfarction has a good effect and is worthy of clinical application.

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