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The effect of perioperative psychological intervention on psychological and quality of life in patients with coronary heart disease after CABG.

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Abstract

Objective: Coronary heart disease has become the third major disease threatening human health in China. CABG is the main treatment method, and has better treatment effect. However, the psychological status of patients will have some negative emotions during the perioperative period of CABG due to many factors, such as their own diseases and environment, which will affect the therapeutic effect of CABG seriously. In order to study the perioperative effect of psychological intervention on the psychological and quality of life of patients after CABG, the second people's hospital of our province in February 2016, 8 months were set to contrast observation group.

Methods: The intervention group and the control group were set up according to whether psychological intervention was carried out. There were 40 patients in the two groups. SAS, SDS and SWLS were used to make quantitative analysis from two aspects: psychological status and quality of life.

Result: The result showed that after 72 h postoperative, the SAS scores of the control group and the intervention group are 43.6 and 38.1 respectively ($t=8.13$, $p<0.05$), and the SDS scores of the control group and the intervention group are 42.2 and 36.3 respectively ($t=9.77$, $p<0.05$).

Conclusions: Perioperative psychological intervention can effectively improve the psychological status of patients undergoing CABG which has important significance, and has important help for postoperative recovery and quality of life.

Keywords: Coronary heart disease, CABG, Psychological intervention, Quality of life.

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Introduction

According to incomplete statistics, cardiovascular disease has become the leading cause of population death in China. Nationwide, nearly 300 million people have varying degrees of cardiovascular disease. We can see according to the medical statistics in recent years that one of the three leading causes of death among the elderly is coronary heart disease CHD [1]. With the deepening of aging in China, the number of elderly deaths caused by coronary heart disease increases year by year, which poses a serious threat to the health and safety of the population in China. The treatment of coronary heart disease is mainly based on interventional therapy, and most of which are performed coronary artery bypass grafting. The operation is safe and effective, and the cost is relatively low, which is more acceptable to the patients. Advances in medical technology and advances in technology have further reduced the risk of coronary artery bypass grafting, making the treatment the first choice for coronary artery disease [2]. However, because of the lack of awareness of coronary heart disease in our country, on the one hand, it reflects the possible risks of surgery, and on the other hand, it worries about the cost of treatment. This psychological change will be concentrated in perioperative period, and the degree of psychological stress in perioperative period is higher, causing anxiety and depression in the patient's heart. This will lead to an increase in the risk of surgery, which is not conducive to the prognosis of patients, seriously affecting the quality of life of patients after surgery [3]. Previous studies have shown that the factors affecting the quality of life in patients with coronary heart disease in recent years are low, including disease factors, social factors, psychological factors and their own bad habits. And the most important factor is psychological factors. As long as it can effectively improve the psychological status of patients, it can greatly improve the postoperative quality of life of patients [4].

As the majority of elderly patients with coronary heart disease, that is, most of the patients are older. Therefore, the lack of awareness of coronary heart disease is the main cause of psychological problems [5]. The psychological intervention for the patients with coronary heart disease consists of two aspects mainly: cognitive intervention and psychological behavior intervention. We can strengthen the awareness of the mechanism of coronary heart disease, improve their psychological status and establish good behavior habits. In order to further understand the perioperative effect of psychological intervention on quality of life in patients with coronary heart disease and CBAG after operation, the control experiment of the province through the observation of the second people's Hospital was conducted, and the intervention

group and the control group were set up. We can understand the positive effect of psychological intervention through quantitative analysis and qualitative analysis. Based on this, we can explore the role of perioperative psychological intervention, which can be widely used in CABG surgery for patients with coronary heart disease. This reduces the psychological emergency degree of perioperative patients, improves the quality of life in an all-round way and speeds up the postoperative recovery of patients, which provides some practical basis for clinical medical work.

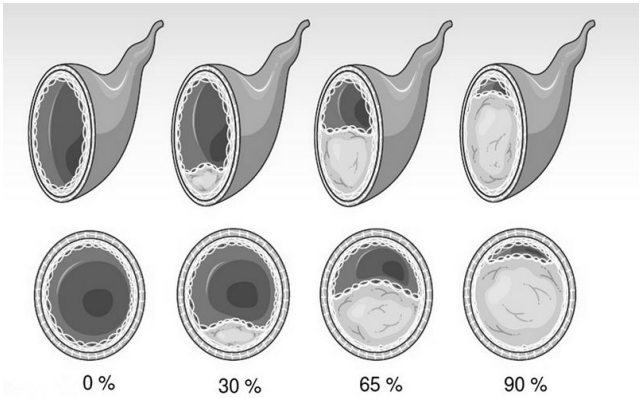

Figure 1. Coronary artery occlusion.

Coronary artery bypass graft (CABG) and negative emotions in patients

Coronary artery bypass grafting (CABG): Coronary heart disease patients include atherosclerosis and coronary artery inflammation, embolism, convulsions, congenital malformations, etc. However, more than 90% of all coronary heart disease is atherosclerosis, so coronary heart disease in the narrow sense refers to coronary atherosclerotic heart disease [6]. At present, coronary heart disease has become a global range of diseases, which affects people's health seriously. Since the 50s of last century, coronary heart disease has become the major fatal disease in western developed countries gradually. The incidence of coronary heart disease in China has also increased year by year, and there is a gradually increasing trend. For example, there are about 6 million coronary heart disease patients per year in the United States. The heart events caused by this are 1 million 500 thousand times [7]. The incidence of coronary heart disease in China increases by more than 2 times every 10 years. As a whole, the incidence of coronary heart disease in the northern part of China is higher, and the fatality rate of coronary heart disease ranks third. Coronary artery disease is caused by atherosclerosis, which caused by coronary artery stenosis and obstruction of the blood supply of the heart will limit, which will cause cardiac hypoxia, angina, and pain and other symptoms. If a coronary artery is completely blocked, severe myocardial damage can occur [8]. The occlusion of the coronary arteries is shown in Figure 1. When the obstruction is 0%, the coronary artery is in a normal state. With the worsening of coronary artery occlusion, it also has more and more serious effects on cardiac function (Figure 2).

ECG, coronary angiography, radionuclide examination and X-ray tomography can be used in the diagnosis of coronary heart disease [9]. One of the most reliable diagnostic methods is coronary angiography, which can understand the specific shape of the coronary artery directly so as to determine the extent of the patient's lesions to observe the presence of thrombosis, calcification, and intimal dissection and so on. The characteristics of the upper or lower limb femoral artery puncture catheter can be used to explore the left coronary artery or right coronary artery insertion, and injection of contrast agent so that it can be developed. Thus, the trunk and the branch lumen of the left and right coronary arteries can be clearly displayed. Based on this, the doctor can determine whether there is a narrow lesion, and analyze the corresponding vascular wall and the location and severity of the lesion, and then select the appropriate treatment plan [10]. At present, coronary angiography is suitable for patients with coronary heart disease, angina pectoris, and chest tightness and chest pain symptoms. Coronary angiography is especially true in patients older than 50 who require major surgery and unexplained electrocardiographic abnormalities. However, coronary angiography is not suitable for arrhythmias, uncontrollable hypertension, contrast agent hypersensitivity, and acute myocarditis [11].

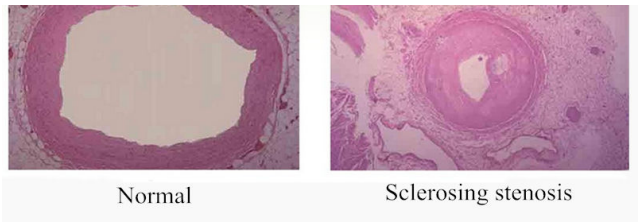

Figure 2. Contrast analysis of normal and sclerotic stenosis.

The most common and effective treatment for coronary heart disease is coronary artery bypass grafting (hereinafter referred to as CABG). It can realize the recanalization of blood vessels and improve the blood supply of the coronary arteries to the heart. To some extent, it alleviates the angina pectoris symptoms in patients with coronary heart disease, and improves the quality of life after the operation greatly [12]. You can see in Figure 3 that the coronary artery is the most important blood vessel in the nourishing heart. Coronary artery bypass grafting is needed when one or more of the coronary arteries are severely lacking in blood supply due to obstruction. Doctors can choose special wire conduits for heart interventional treatment. By gentle operation, it can completely pass through the coronary artery which has completely blocked the lesion, or use the collateral vessels to open the obstructed coronary artery, thus improving the blood flow of the coronary artery. With the development of modern science and technology and the progress of medical technology, the success rate of comprehensive interventional treatment is higher and higher, and it has reached about 85% [13]. But we need to make a comprehensive analysis of each patient and need a more accurate assessment of the type of cardiovascular disease, age, comorbidities, and so on to be able to choose a more targeted treatment in the specific treatment process. In addition

to surgical treatment, we can also be treated with medication, which mainly contains anti platelet drugs, lipid-lowering drugs, anti-atherosclerosis drugs and anti-angina drugs, such as aspirin, atorvastatin, nitric acid and other drugs [14].

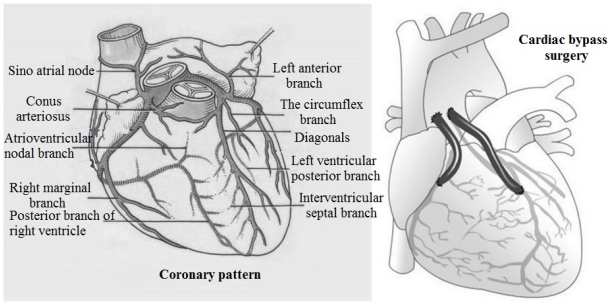

Figure 3. *Cardiac structure and coronary artery bypass grafting.*

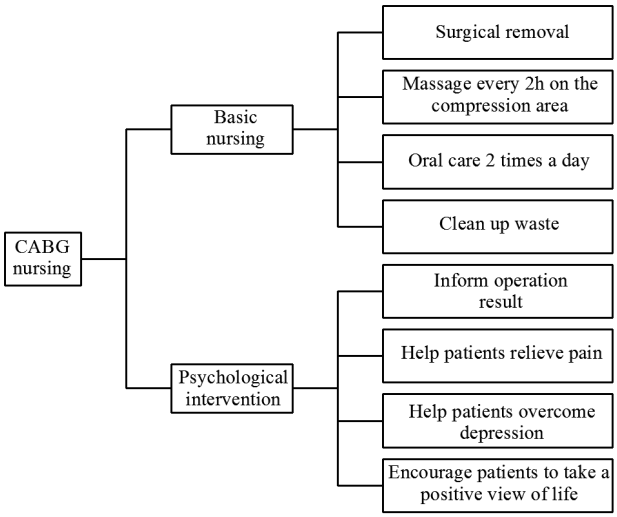

Figure 4. *Basic nursing and psychological intervention after CABG.*

Negative emotions and interventions in patients undergoing CABG

Patients with coronary heart disease will change greatly both in physiology and psychology in the course of the occurrence and development of the disease. The two also interact with each other. Physiological changes can lead to more negative emotions in the mind, and this negative mood can exacerbate the symptoms of physical illness and aggravate the symptoms of physical illness in the patient [15]. This negative emotional impact on patients with coronary heart disease is also more significant, especially in patients with CABG after the depression, anxiety, which will have a very serious negative impact on the condition of patients with coronary heart disease. Coronary heart disease patients are often accompanied by very severe anxiety states and severe depression, which further increases the mortality of patients with coronary heart disease, and has a serious impact on the quality of life of patients. Previous studies have also shown that sudden death in patients with coronary heart disease is associated with their anxiety state [16]. Many patients are treated conservatively during the long course of treatment. Therefore, the treatment effect is relatively limited, and finally the surgical treatment should be adopted. In this case, coronary heart disease patients hope to be able to get better treatment results. But there is some concern about the operation in the heart. They worry about the accident during the operation, or worry about other complications after the operation. Thus, there will be a variety of anxiety, and then will have a serious impact on the recovery of patients after the disease [17].

In order to improve the psychological status of patients with coronary heart disease and improve the postoperative quality of life, you need to change in patients with coronary heart disease after surgical intervention to negative cognition to the disease so as to change their original cognition of their own disease. This perception is related to the body's performance directly, such as faster heartbeat and higher blood pressure. And when people know more clearly about an unknown thing, there is a clearer expectation of future results. This can relieve the psychological stress reaction and reduce the degree of physiological disorder to a certain extent [18]. Under normal circumstances, coronary heart disease patients will undergo preoperative and postoperative care, which includes both psychological care intervention, but also includes psychological care intervention. Before surgery, when patients are experiencing pain, they need a quiet rest, and try to avoid excessive fatigue and emotional agitation. We should offer the basic knowledge of coronary heart disease to the patient so that it has a certain understanding of the attack and prevention of angina pectoris. For patients with anxiety, patients should be given adequate psychological care, and encourage them to the heart of real feelings and ideas so as to provide targeted guidance and help. We should disperse the patient's attention and let them relax, and explicitly inform the adverse effects of emotional instability on heart disease [19]. After the operation, patients need to monitor the condition, observe the patient's skin color, body temperature, urine color and other characteristics of the body. We should pay attention to the fluctuation of the lower limb artery, and observe the change of the organs after regular chest X-ray examination and B ultrasonic examination. In psychological intervention, it is necessary to understand and respect patients adequately, and give them adequate comfort and explanation to help patients with the author's basic and life care, especially for patients to create a good sleeping environment [20]. Doctors should communicate with the patient's family members actively so that they can do a good job of psychological care of patients and patient can have a good and stable mood to cooperate with the treatment. The measures of basic nursing care and psychological nursing for patients with coronary heart disease after CABG are detailed as shown in Figure 4. Therefore, the purpose of this study is to investigate the perioperative effect of psychological intervention on the psychological and quality of life of patients after CABG.

Table 1. *General data of patients in intervention group and control group.*

Project	Control group	Intervention group	P

Average age		50.2	49.1	>0.05
Gender	Male	28	24	>0.05
	Female	12	16	
Combined chronic disease	Hypertension	14	11	>0.05
	Diabetes	7	8	>0.05
	Hyperlipemia	18	14	>0.05
	Other	10	12	

Methods

Subjects

In order to better perioperative psychological intervention on the psychological and quality of life in patients with coronary heart disease after CABG operation, the observations on cardiac surgery the second people's hospital of our province was conducted since the beginning of February 2016. The experiments were divided into two groups. One group was the intervention group and the other was the control group. The intervention group was treated with psychological intervention during the perioperative period, while the control group received no psychological intervention except for basic care. Compared with the observation period, the experiment lasted until September 2016, and lasted for 8 months. The inclusion and exclusion criteria for the patient are as follows:

The inclusion criteria for patients are as follows: (1) Age range is from 28 to 68 years of age. (2) Patient has been diagnosed with coronary heart disease, and has the condition of CABG operation after a variety of medical means. (3) Have certain cognitive ability and learning ability, and can accept psychological intervention treatment. (4) The research and control experiments are carried out through the study of patients' unification, and the doctor's treatment and the study are fully coordinated in the course of the study.

There are exclusion criteria: (1) There are other serious complications. (2) Patients and their families do not agree with this study, which has a very strong conflict with the study. (3) Use of psychotropic drugs, complicated by neurological diseases. (4) Patients who has exited because of an accident or cause during the course of the study.

Research grouping

In order to be more objective, the analysis of the control results between the experimental group and the control group is carried out, and 40 patients are screened out. A total of 80 patients, including 52 males and 28 females, are enrolled. The male to female ratio is 1.86:1. Randomization is conducted in packet processing. The specific grouping is as follows: The intervention group consists of 40 patients, 24 male patients and 16 female patients, with a male to female ratio of 1.5:1. The average age is 49.1 years. Among them, the oldest is 67 years old and the youngest is 28 years old. The control group consists of 28 male patients and 12 female patients with a male to female ratio of 2.33:1. The average age is 50.2 years. The oldest is 68 years old, and the youngest is 28 years old. There is no significant difference between the intervention group and the control group in terms of age, sex, or cardiac function. Therefore, the results of comparative analysis have certain comparability (Table 1).

Research methods

The biggest difference between the intervention group and the control group lies in whether psychological intervention is carried out. The control group only receives basic nursing, while the intervention group undergoes comprehensive psychological intervention. The main interventions are carried out in two aspects: cognitive intervention and psychological behavior intervention. Cognitive intervention involves allowing patients to understand the pathogenesis of the coronary artery disease and the associated surgical conditions, and also use computer aided techniques to introduce the surgical procedure to the patient. The patient's mental state is understood by communicating and answering questions. Psychological and behavioral intervention is to guide patients for effective cough training, and take targeted training measures for possible postoperative adverse reactions. Especially the surgical approaches, psychological stress in patients with clear. Psychological care can be used to relieve mood and reduce anxiety and depression caused by surgery. As a whole, cognitive interventions mainly involve intervention in cognitive bias, understanding of surgical procedures, and communication. Psychological behavior intervention mainly includes formed good preoperative and postoperative habits, effective cough training, psychological relief and adverse reactions, for training, specific is shown in Table 2.

Table 2. *Cognitive intervention and psychological intervention in intervention group.*

Intervention measures		Content
Cognitive intervention	Cognitive bias intervention	To correct the patient's knowledge of the disease and surgery, to make a better understanding of the mechanism of coronary heart disease and common disease education
	Understanding of surgical procedures	Use slides to allow patients to observe the operation brief process
	Exchange talk	Communicate with patients, and actively guide them
Psychological behavior intervention	Form good habits	Take medicine on time, control diet and exercise
	Effective cough training	Abdominal breathing, balloon training and other effective cough training
	Psychological relief	Near surgery, patients with psychological stress is more intense, the need for a certain psychological counseling ease

Adverse reaction training	for	By watching the video, targeted training for adverse reactions

When the intervention group and the control group are evaluated postoperatively, they are carried out from two aspects: psychological impact and quality of life. We compare and analyze through quantitative analysis. Among them, the psychological impact assessment is assessed by the self-rating Anxiety Scale (hereafter referred to as SAS) and the self-rating Depression Scale (SDS). 20 items are set in each of the two tables. Each item was rated four, 1, 2, 3, and 4. The higher the score, the worse the psychological condition is. All of the scores after the cumulative scores multiplied by the coefficient 1.25 and rounded overall score. Psychological status is assessed according to different scoring intervals according to different intervals [0, 50], [50, 60], [60, 70], [70, 100]. According to the scoring, SAS interval are normal, mild anxiety, moderate anxiety, severe anxiety, and SDS interval are no depression, mild depression, moderate depression, and severe depression according to the scoring. Details are shown in Table 3. SAS and SDS scores are analyzed before operation, 12 h and after 72 h operation respectively.

Table 3. *SAS and SDS scoring criteria.*

Score interval	<50	50-60	60-70	≥ 70
Anxiety level	Normal	Mild anxiety	Moderate anxiety	Severe anxiety
Depression degree	No depression	Mild depression	Moderate depression	Severe depression

The life satisfaction scale (SWLS) is used for quantitative analysis so as to comprehensively evaluate the quality of life of patients in the evaluation of life quality. It is suitable for different age groups, and has better applicability. SWLS is divided into 5 items. Each item is rated according to level 7, with scores ranging from 1 to 7 points, which are more satisfied with the quality of life in some way progressively. The overall scoring interval was [5, 35]. The higher the overall score, the better the quality of life of the patients. Life satisfaction is only statistically analyzed after operation, and the control group and the intervention group are compared and analyzed. All data are analyzed using SPSS software. The level of significance is set as 0.05. When $P<0.05$, which shows that there is significant statistical significance.

Results

We can see through the analysis of the psychological state that the scores of preoperative SAS, control and intervention groups are 44.2 and 44.8 respectively. The scores of preoperative SDS control group and intervention group are 43.1 and 42.7 respectively. This shows that preoperative psychological status of patients with coronary heart disease is equivalent and there is no big difference. Overall, there are no major problems with the patient's mental status. However, the scores of SAS and SDS are 62.8 and 63.9, respectively with moderate anxiety and moderate depression. That is to say, the psychological state of some patients is poor, so it is necessary to do some psychological intervention for them.

Table 4. *Analysis of the psychological state of the intervention group and the control group before and after operation.*

Self-rating scale	Time	Intervention group	Control group	The value of P
SAS	Preoperative 12 h	44.8	44.2	<0.05
	Postoperative 72 h	38.1	43.6	<0.05
SDS	Preoperative 12 h	42.7	43.1	<0.05
	Postoperative 72 h	36.3	42.2	<0.05

It can be seen from the psychological scores after 72 h postoperative that the SAS scores of the control group and the intervention group are 43.6 and 38.1 respectively, and the SDS scores of the control group and the intervention group are 42.2 and 36.3 respectively. Combined with preoperative scores, we can see that the SAS and SDS scores of the intervention group are decreased by 14.96% and 14.99% respectively compared to the preoperative psychological state (Table 4). Thus it can be seen that psychological intervention has a significant improvement on the psychological status of patients. The difference of preoperative and postoperative scores in the control group is not significant (Figure 5). This shows that the preoperative and postoperative psychological state of patients without intervention is quite.

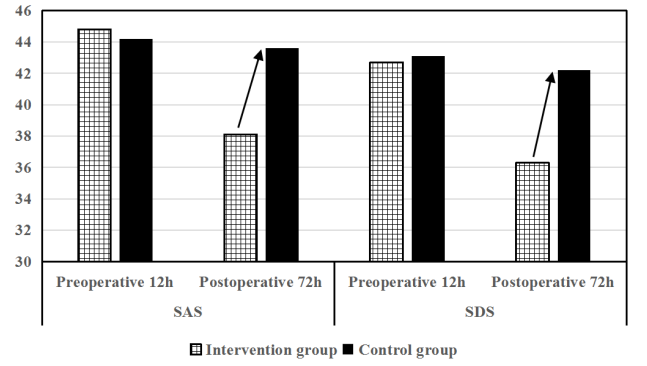

Figure 5. *Preoperative and postoperative intervention group and control group psychological state contrast.*

Table 5. *Comparison of quality of life in the control group and the intervention group.*

	Control group	Intervention group	The intervention group increased compared with the control group
SWLS score	28.4	32.6	14.79%

The scores of postoperative quality of life in SWLS intervention group and control group are 32.6 and 28.4 respectively. The life satisfaction of the intervention group is 14.79% higher than that of the control group (Table 5). This

fully shows that psychological intervention measures have better effect on postoperative quality of life.

Discussion and Conclusion

Cognitive behavioral intervention will allow patients to better understand the related pathological mechanisms of coronary artery disease. They have a scientific understanding of them, thereby avoiding psychological fears that are unknown, and are more willing to accept and cooperate with them. It can be found from the existing studies that the psychological knowledge of the disease can reduce its resistance to drugs, thereby enhancing the compliance of medication. In this control experiment, the results also reflect the psychological intervention can allow patients to more coordinate with the doctor's treatment program, including medication related training. Because of the lack of adequate cognition for coronary heart disease, some patients in the control group have some doubts and conflicts about the treatment at heart, resulting in the lack of coordination between the patients on the treatment. When the psychological intervention of patients is conducted, in addition to the use of modern computer-aided technology, it is more important to achieve in-depth communication between doctors, nurses and patients. Doctors need to understand the patient's real situation so that the patient has sufficient confidence in the medical staff, and establish a harmonious doctor-patient relationship. As a result of physical and environmental factors, coronary heart disease patients will suffer from certain anxiety and depression. If there is no proper psychological counseling, it will cause the negative psychological emotion to a certain extent. With the influence of psychological intervention measures, patients receive psychological treatment and act in coordination with the treatment, which will be reflected in the patient's specific quality of life. For example, when the patient is actively cooperating with respiratory function training, he can achieve a significant shortening of the extubating time after surgery and reduce complications such as pleural effusion. Only routine care can’t solve the essential psychological negative emotions of patients, and improve the psychological status of patients. This can improve the hemodynamic parameters to a certain extent, and give full play to the patient's own positive subjective state of mind. This is also the shortcoming of perioperative care for patients with modern coronary heart disease (CABG). Most hospitals do not pay attention to the psychological intervention of patients, much less to improve the psychological status of the patients, which will seriously affect the treatment effect of CABG surgery.

In order to carry out the perioperative psychological intervention effect on psychological and quality of life of CABG in patients with coronary heart disease after cardiac surgery, the second people's Hospital of our country was set a control experiment. Among them, the intervention group was treated with psychological intervention during the perioperative period, and the control group was not treated with psychological intervention except basic care. The control trial was conducted from February 2016 to September 2016, with a total of 8 months. There were 40 patients in two groups with a total of 80 patients. The psychological intervention in the intervention group was carried out in two aspects mainly. One was the intervention of cognitive behavior, and the other was the intervention of psychological behavior. The self-rating anxiety scale SAS and the self-rating depression scale SDS were selected to make a comprehensive evaluation analysis in the evaluation of psychological status. The life satisfaction scale (SWLS) was used for quantitative analysis in the evaluation of life quality. It can be seen through the analysis results that the scores of SAS and SDS in the intervention group decreased significantly compared with the preoperative 12 h, and decreased by 14.96% and 14.99% respectively after 72 h. But there was no significant change in the control group. The postoperative quality of life in the intervention group also increased by 14.79% compared with the control group. This showed that psychological intervention on the quality of life of patients with coronary heart disease had a certain effect. The postoperative psychological status and quality of life were analyzed by self-rating table. Therefore, the analysis results were affected to some extent by the subjective consciousness of patients, which might have some influence on the results of the study.

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