

Original Article

Application of quality nursing care for interventional therapy in myocardial infarction for improving the quality of life of patients

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Abstract: Objective: To explore the impact of quality nursing care on the quality of life of myocardial infarction patients after intervention therapy. Methods: A total of 122 patients with myocardial infarction were selected. They were randomly divided into the observation group (N=61) and control group (N=61). The observation group was given quality nursing care in addition to conventional nursing care after intervention therapy while the control group received conventional nursing care after intervention therapy. The complications of the two groups were recorded. The SAS, SDS scores, and nursing satisfaction rates of the two groups were compared. The myocardial infarction multidimensional scale (MIDAS) score was used to compare the improvement of quality of life in two groups. Results: The overall incidence rates of bleeding in the injection site, vagal reflex, arrhythmia, and ventricular fibrillation in the observation group were significantly lower than those in the control group (P<0.001). The SAS and SDS scores of the observation group after nursing care were significantly lower than those of the control group (P<0.001). The nursing dissatisfaction rate of the observation group was significantly lower than that of the control group (P<0.001). The MIDAS score of the observation group after nursing care was significantly lower than that of the control group (P<0.001). Conclusion: The application of high-quality nursing to intervention therapy in myocardial infarction patients can effectively reduce the incidence of complications in patients, and improve nursing satisfaction. High-quality nursing care is worthy of further clinical application and promotion.

Keywords: Myocardial infarction, quality nursing care, quality of life, complications, therapy

Introduction

Myocardial infarction is a cardiovascular system disease that occurs when the blood supply to the heart is interrupted or when there is imbalance between myocardial oxygen demand and supply due to blockage in the coronary blood vessels [1]. The blood flow to the patients' heart is reduced due to prolonged ischemia, which will result in hypoxia or even necrosis of myocardial cells [2]. The incidence of myocardial infarction is high, the prognosis is poor, and the mortality rate of patients with myocardial infarction is also high [3]. In view of the extremely high incidence and mortality of myocardial infarction, the early treatment exerts a great impact on the life of patients with acute myocardial infarction and will affect the follow-up therapeutic effect of patients. The onset of disease should be given timely and close attention, and the obstructed blood vessels must be treated promptly within 12 hours, for the opti-

mal treatment time. Moreover, nursing care interventions should be carried out after treatment so as to maintain the therapeutic effect [4-6].

In the clinical rescue of patients with acute myocardial infarction, the blocked blood vessels should be promptly and timely cleared to increase the viability of cardiac myocytes [7]. Intervention therapy is a common and effective treatment for myocardial infarction, and the intervention therapy has a good and rapid effect on myocardial infarction [8, 9]. The requirement for nursing care after intervention therapy for patients with myocardial infarction is high, and performance of reasonable nursing measures can potentially improve blood perfusion, promote recovery of myocardial function, and prevent complications [5]. The incidence of complications in patients with myocardial infarction is high. Different nursing protocols have different effects on the patients, and the

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choice of the appropriate nursing protocol is of great influence on the treatment of patients with myocardial infarction receiving intervention therapy [10, 11]. Provision of quality nursing care has a positive effect on the health state of myocardial infarction patients and is an effective method for improving the psychological and emotional state of patients [12].

To provide a more reasonable reference for the treatment of clinical myocardial infarction, this study aimed to explore the impact of quality nursing on the quality of life of myocardial infarction patients after intervention therapy.

Materials and methods

Data of the participants

In total, 122 patients with myocardial infarction were selected. They were randomly divided into the observation group (N=61) and control group (N=61). The observation group, included 33 men and 30 women aged 43-69 years, with an average age of 55.02 ± 13.08 years, was given quality nursing care in addition to conventional nursing care after intervention therapy while the control group, included 32 men and 29 women aged 42-70 years, with an average age of 55.01 ± 12.09 years, received conventional nursing care after intervention therapy.

All patients were diagnosed with myocardial infarction by clinical diagnosis and who required intervention therapy were included in this study. On the contrary, (1) patients with extremely serious complications during intervention therapy; (2) patients with neurological disorders, such as decline in cognitive function, inability to perform physical activity, and language impairments; (3) and patients with coagulopathy, liver dysfunction, renal dysfunction, or other infections or physical illnesses were excluded. This study was approved by the Ethics Committee of Xuzhou Cancer Hospital. The patients and their families were informed in advance and signed the informed consent before the official initiation of the study.

Nursing care method

Nursing intervention was started after the initial treatment of the two groups of patients, who were followed for 12 months. Patients in the control group were given conventional care, where the conditions and vital signs of the patients before and after surgery were monitored. The observation group additionally

adopted quality nursing care which included (1) Psychological nursing care: patients with myocardial infarction are prone to anxiety, depression, and other negative psychological emotions; hence, they were given relaxation therapy and were encouraged to strictly adhere to their treatment regimen. However, the surgical treatment may increase the patients' negative emotions. (2) Health education: health education plans were made based on the characteristics of each patient and were adjusted dynamically; discontinuing drug treatments without permission and intake of medications without instructions were not allowed, and communication with the doctors were done in a timely manner; provision of guidance and education on disease, diet, rest, and activity as well as medication instructions were performed to ensure the quick detection of adverse reactions during medication treatment. (3) Patients' were encouraged to modify their unhealthy lifestyles. Their sodium intake was limited. They were placed on a light diet and were required to consume low fat, low cholesterol, and high cellulose foods. Smoking or alcohol consumption was not allowed. Consumption of irritating foods were avoided. Therefore, the patients' mental status was kept stable to ensure their continued adherence to the treatment regimen and coordination with the nursing care after transferring to the general ward. (4) Nursing care for complications: the patients were informed of the risk factors and symptoms of common complications to facilitate the early detection and treatment of complications. Preventive care protocols for common complications were developed so as to facilitate a rapid response and perform quick measures when patients developed complications. Patients' blood pressure, routine blood work, and other indicators were observed, and appropriate interventions were given to manage mild complications in order to improve postoperative outcomes. Moreover, patients with acute complications were treated in a timely manner. (5) Hygiene care: patients' clothes and bed sheets were kept clean. More attention is paid to the performance of wound hygiene and reduction of wound contamination to prevent infection. Measures to prevent pressure ulcers or other skin inflammatory diseases were also performed.

Evaluation criteria

The patients were followed up for 12 months; the changes in emotions before and after nurs-

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Table 1. General clinical data of the two groups

Group		Observation group (n=61)	Control group (n=61)	t/X ²	P
Gender	Male	31 (50.82)	32 (52.46)	0.033	0.856
	Female	30 (49.18)	29 (47.54)		
Age (years)	≤55	20 (32.79)	19 (31.15)	0.038	0.846
	>55	41 (67.21)	42 (68.85)		
Whether obesity	Yes	45 (73.77)	44 (72.13)	0.042	0.839
	No	16 (26.23)	17 (27.87)		
Body mass index (kg/m ²)	≤18.25	15 (24.59)	16 (26.23)	0.043	0.835
	>18.25	46 (75.41)	45 (73.77)		
Routine blood	Hb (gm/dl)	8.23±1.86	11.63±2.63	8.244	<0.001
	RBC (×10 ¹² /L)	4.28±0.37	4.19±0.35	1.380	0.170
	PLT (×10 ⁹ /L)	148.63±22.78	151.63±25.61	0.684	0.496
Liver function	ALT (U/L)	22.41±10.43	20.41±8.45	1.164	0.247
	AST (U/L)	19.35±8.63	17.48±7.24	1.297	0.197
Renal function	TP (g/L)	130.50±10.44	75.98±10.23	29.130	<0.001
	UREA (mmol/L)	8.09±1.03	4.12±1.67	15.800	<0.001
	CRE (μmol/L)	200.56±20.12	98.49±18.08	29.470	<0.001
	UA (μmol/L)	629.45±40.76	204.84±56.19	47.770	<0.001
Overworked	Have	47 (77.05)	48 (78.69)	0.048	0.827
	No	14 (22.96)	13 (21.31)		
Smoking situation	Have	40 (65.57)	40 (65.57)	0.000	1.000
	no	21 (34.43)	21 (34.43)		
Other history of heart disease	Have	35 (57.38)	35 (57.38)	0.000	1.000
	no	26 (42.62)	26 (42.62)		
Myocardial infarct size	>40%	54 (88.52)	55 (90.16)	0.086	0.958
	≤40%	7 (11.48)	6 (9.84)		
Heart function classification	I~II	31 (50.82)	31 (50.82)	0.000	1.000
	III~IV	30 (49.18)	30 (49.18)		

ing care were compared using the self-rating anxiety scale (SAS) [13] and self-rating depression scale (SDS) [14]. Patients' quality of life before and after nursing care was assessed using the myocardial infarction multidimensional scale (MIDAS) [15]. The score was negatively correlated with the quality of life but was positively correlated with the degree of myocardial infarction. Patients' total MIDAS score was 140. A higher MIDAS score indicated a lower quality of life and a more severe myocardial infarction.

Outcome measures

The complications, including bleeding at puncture site, vagus reflex, arrhythmia and ventricular fibrillation were recorded; the SAS and SDS scores were recorded and compared; the nursing care satisfaction of patients with myocardial infarction after intervention therapy was compared; the MIDAS scores were used to compare the degree of improvement in the

quality of life of patients with myocardial infarction after intervention therapy.

Statistical methods

Statistical analysis was carried out using SPSS 17.0 software system (Beijing Strong-Vinda Information Technology Co., Ltd.); the measurement data were expressed as $\bar{X} \pm s$, and the count data were as n (%). For intragroup before-after comparison, pairwise t test was used; for between-group comparison, independent t test was used. $P < 0.05$ was considered statistically significant.

Results

Baseline data

The two groups had no significant differences in gender, age, obesity, body mass index, and liver function, etc. before treatment ($P > 0.05$). The two groups were comparable (Table 1).

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Table 2. Complications in the two groups [n (%)]

Group	n	Bleeding at the puncture site	The vagus reflex	Abnormal heart rate	Ventricular fibrillation	Total complication rate
Observation group	61	1 (1.64)	4 (6.56)	4 (6.56)	1 (1.64)	10 (16.39)*
Control group	61	3 (4.92)	10 (16.39)	11 (18.03)	5 (8.20)	29 (47.54)

Note: *indicated that the complication rate of this group was significantly lower than that of the control group ($P<0.001$).

Table 3. Comparison of SAS scores before and after nursing in the two groups

Group	Observation group (n=61)	Control group (n=61)	t	P
Before nursing	49.29±2.45	49.01±3.56	0.506	0.614
After nursing care	36.28±2.15*,#	44.82±2.17*	21.830	<0.001
t	9.204	7.593		
P	<0.001	<0.001		

Note: *indicated that the SAS scores of this group after nursing care were significantly lower than those before nursing care ($P<0.001$). #indicated that the value of SAS in this group was significantly lower than that in the control group ($P<0.001$).

Comparison of complications between the observation group and the control group

The complications, such as injection site bleeding, vagus reflex, arrhythmia, and ventricular fibrillation, of the observation group and the control group were observed, and no significant difference was measured ($P>0.05$). The overall incidence of complications in the observation group was lower than that in the control group, and the difference was significant ($P<0.001$) (Table 2).

Comparison of SAS scores between the observation group and the control group before and after nursing care

The SAS scores of the observation group before and after the nursing care were 49.29±2.45 and 36.28±2.15, respectively. The SAS scores of the control group before and after nursing care were 49.01±3.56 and 44.82±2.17, respectively. The intragroup comparison result indicated that the SAS score after nursing care was lower than that before the nursing care in both groups, and the difference was significant ($P<0.001$). The results of the comparison between groups showed that the SAS scores of the observation group and the control group before the nursing care had no significant difference ($P>0.05$); the SAS score of the observation group after nursing care was lower than that of the control group and the difference was significant ($P<0.001$) (Table 3).

Comparison of SDS scores between the observation group and the control group before and after nursing care

The SDS scores of the observation group before and after nursing care were 48.63±3.51 and 36.03±1.47, respectively. The SDS scores of the control group before and after nursing care were 48.38±3.29 and 42.68±2.49, respectively. The intragroup comparison result showed that the SDS score after nursing care was lower than the SDS score before nursing care in both groups, and the difference was significant ($P<0.001$). The comparison between groups showed that there was no significant difference in the SDS scores between the observation group and the control group before nursing care ($P>0.05$); the SDS score in the observation group after nursing care were lower than that in the control group, and the difference was significant ($P<0.001$) (Table 4).

Comparison of nursing satisfaction between the observation group and the control group

The nursing satisfaction, general satisfaction, and total nursing satisfaction in the observation group were higher than those in the control group, and the difference was significant ($P<0.001$); the nursing dissatisfaction of the observation group was lower than that of the control group, and the difference was significant ($P<0.001$) (Table 5).

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Table 4. Comparison of SDS scores before and after nursing care between the two groups

Group	Observation group (n=61)	Control group (n=61)	t	P
Before nursing	48.63±3.51	48.38±3.29	1.477	0.142
After nursing care	36.03±1.47*,#	42.68±2.49*	17.960	<0.001
t	8.329	6.245		
P	<0.001	<0.001		

Note: *indicated that the SDS scores of this group after nursing care were significantly lower than those before nursing care (P<0.001). #indicated that the SDS score of the group after nursing care was significantly lower than that of the control group after nursing care (P<0.001).

Table 5. Comparison of nursing satisfaction between the two groups [n (%)]

Group	n	Satisfaction	General	Dissatisfied	Total satisfaction of nursing
Observation group	61	49 (80.33)*	7 (11.48)*	5 (8.20)*	56 (91.80)*
Control group	61	15 (24.59)	25 (40.98)	21 (34.43)	40 (65.57)
X ²		-	-	-	12.25
P		-	-	-	<0.001

Note: *indicated that the nursing satisfaction in this group was higher than that in the control group, and the difference was significant (P<0.001).

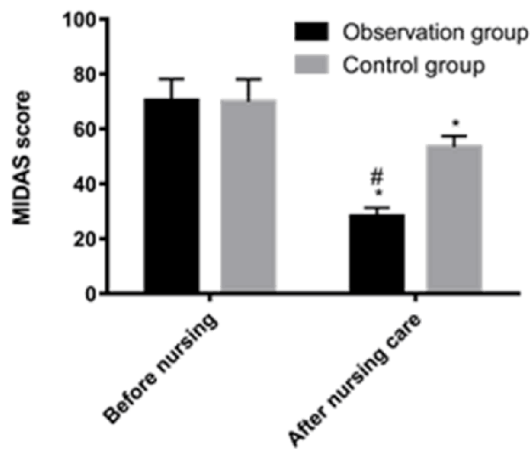


Figure 1. Comparison of MIDAS scores before and after treatment. The MIDAS scores after nursing care were lower than those before the nursing care in both groups, and the difference was significant (P<0.001). Note: *indicated that the MIDAS score in this group was lower than that before nursing care, and the difference was significant (P<0.001). #indicated that the MIDAS score of this group after the nursing care was lower than that of the control group, and the difference was significant (P<0.001).

Comparison of quality of life between the observation group and the control group before and after nursing care

The MIDAS scores of the observation group before and after nursing care were 70.35±7.82 and 28.24±3.02, respectively. The MIDAS sco-

res of the control group before and after nursing care were 69.92±8.23 and 53.47±4.02, respectively. The intragroup comparison result indicated that the MIDAS scores after nursing care were lower than those before the nursing care in both groups, and the differences were significant (P<0.001). The results of the comparison between groups showed that there was no significant difference in the MIDAS scores between the observation group and the control group before the nursing care (P>0.05); the MIDAS scores in the observation group after nursing care were lower than those in the control group, and the difference was significant (P<0.001) (Figure 1 and Table 6).

Discussion

The conventional therapeutic method is commonly used for the treatment of myocardial infarction patients after intervention therapy. Although the importance of the application of early conventional intervention therapy in the treatment of myocardial infarction is clinically affirmed, the maintenance effect of early conventional intervention therapy is not considered ideal. The patients failed to maintain the therapeutic effect during follow-up treatments for myocardial infarction due to lack of proper nursing intervention, which triggers the development of postoperative complications and the recurrence of myocardial infarction [1, 16].

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Table 6. MIDAS scores before and after nursing care were compared between the two groups

Group	Observation group (n=61)	Control group (n=61)	t	P
Before nursing	70.35±7.82	69.92±8.23	0.296	0.768
After nursing care	28.24±3.02*,#	53.47±4.02*	39.190	<0.001
t	9.513	7.503		
P	<0.001	<0.001		

Note: *indicated that MIDAS scores in this group after nursing care were lower than those before nursing care, and the differences were significant (P<0.001). #indicated that MIDAS score after nursing in this group was significantly lower than that in the control group, and the difference was statistically significant (P<0.001).

Therefore, with the advancement of technology, the intervention treatment for myocardial infarction should be improved, and a suitable and effective method for nursing care treatment of acute myocardial infarction must be selected [17]. At present, several nursing care protocols for myocardial infarction patients are performed after intervention therapy. Among them, high-quality nursing is a kind of nursing intervention protocol commonly used in patients with myocardial infarction. The quality nursing mode further improves the therapeutic effect in patients while ensuring good quality of life [12, 18]. However, at this stage, there is relatively insufficient study on the specific efficacy and quality of life improvement effects of quality nursing care in myocardial infarction patients after intervention therapy. To improve the value analysis of quality nursing in patients with myocardial infarction after intervention therapy and provide a more reasonable reference for nursing methods, this study explored the impact of quality nursing care on the quality of life of patients with myocardial infarction after intervention therapy.

In this study, we grouped the patients according to the nursing care protocol. The myocardial infarction patients who received conventional nursing care after intervention therapy were included in the control group, while those who were given quality nursing care in addition to conventional nursing methods after intervention therapy were included in the observation group. First, we compared the incidence of complications in the two groups. The overall incidence of injection site bleeding, vagus reflex, arrhythmia, and ventricular fibrillation in the observation group was lower than those in the control group. It is suggested that the implementation of quality nursing in addition to routine nursing care after intervention therapy for patients with myocardial infarction can reduce

complications to a certain extent. A similar study was conducted to compare the complications in myocardial infarction patients who received high-quality nursing care and who were given conventional nursing care after intervention therapy. The results also showed that the myocardial infarction patients given high-quality nursing care after intervention therapy had lower incidence of complications than those who received conventional therapy, which supports the results of this study [19, 20]. Then, we compared the SAS and SDS scores before and after nursing care in both groups. The results indicated that the SAS and SDS scores after nursing care were significantly lower than those before the nursing care in both groups, and the differences were significant. The SAS and SDS scores of the observation group were lower than those of the control group after nursing care, and the difference was significant, which suggested that the implementation of quality nursing care in addition to conventional nursing after intervention therapy for myocardial infarction was superior to the conventional nursing care provided to regulate patients' negative mood. A large number of studies on the psychological and emotional effects of different nursing methods in patients with myocardial infarction have shown that the psychological and emotional changes of patients are very important for the long term treatment of patients with myocardial infarction. Moreover, the SAS and SDS scores in the observation group were lower than those of the conventional group, and the psychological and emotional control of patients with myocardial infarction who received quality nursing were better [21, 22]. The above conclusions all supported the viewpoint of this study. Later, we compared the nursing satisfaction of the two groups of patients. The results showed that the nursing satisfaction, general satisfaction, and total care satisfaction of the observation group

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were higher than those of the control group. On the contrary, the nursing dissatisfaction of the observation group was lower than that of the control group, and the differences were significant. A large number of studies have demonstrated that myocardial infarction patients receiving quality nursing care in addition to conventional nursing care after intervention therapy are more satisfied than those who were given the conventional care only [23]. Finally, we used MIDAS to compare the quality of life of the two groups of patients before and after the nursing care. The results showed that the MIDAS score after nursing care was lower than that before nursing care in both groups. By contrast, the MIDAS score after nursing care in the observation group was lower than that in the control group, and the differences were statistically significant. Based on the MIDAS scores of the two groups after nursing care, we believe that the degree of improvement in quality of life for myocardial infarction patients given high-quality nursing care is more clear than those receiving conventional nursing care. The MIDAS score is negatively correlated with the quality of life score. Thus, a lower MIDAS score after nursing care indicated a better improvement in the quality of life. A similar study showed that the MIDAS score of myocardial infarction patients who received quality nursing based over the conventional nursing care after intervention therapy was lower than that of the conventional group. This result was consistent with those reported in the conclusion of our study [24]. Based on the above findings, we believe that high-quality nursing care provided to patients with myocardial infarction in order to improve their quality of life is far superior to the conventional care.

Our study used a small sample size, and there may be some inconsistency on the experimental results, which can cause deviations in the results of the analysis. The geographical environment and the design of nursing programs could also affect the accuracy of the experimental results. In the future, we will use more standardized nursing methods for accurate quantitative analysis.

In summary, high-quality care applied to myocardial infarction patients after intervention therapy can effectively reduce the incidence of complications and better control the emotions

and psychology of the patients. The nursing satisfaction of patients adopting high-quality care is significantly higher than that of the patients receiving conventional care. In addition, the effect of quality nursing care on improving patients' quality of life is far superior to that of conventional nursing care.

Disclosure of conflict of interest

None.

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