

Effect of High-quality Nursing Intervention on Bad Mood, Postoperative Pain and Quality of Life of Patients Undergoing Gallstone Surgery

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Abstract: To demonstrate the influence of high-quality nursing intervention on bad mood, postoperative pain and quality of life (QOL) of patients undergoing gallstone surgery. One hundred and thirty-three patients with gallstone surgery in our hospital were selected as the research participants, of which 76 cases received high-quality nursing during hospitalization and were regarded as the research group (RG), and the remaining 57 cases received routine nursing care alone and were included in the control group (CG). The two series were compared regarding pain status, postoperative recovery, pain scores, pain duration and frequency pre- and post-intervention, incidence of complications, psychological state scores pre- and post-intervention, as well as nursing satisfaction and postoperative QOL. The number of patients with pain in RG was notably less than that in CG ($P < 0.001$). RG presented shorter anal exhaust time, ambulation time and hospitalization time than CG ($P < 0.05$). Also, in comparison with CG, RG displayed lower pain scores post intervention ($P < 0.05$), with shorter pain duration and pain frequency ($P < 0.05$). RG had fewer complications than CG ($P < 0.009$). The scores of depression and anxiety were notably lower in RG than in CG ($P < 0.05$). RG showed higher satisfaction and recognition than CG ($P < 0.001$). The QOL of patients was also superior in RG ($P < 0.05$). High-quality nursing intervention can validly mitigate postoperative bad mood, reduce postoperative pain and meliorate postoperative QOL of patients with gallstone surgery.

Keywords: high-quality nursing, patients with gallstone surgery, bad mood, postoperative pain, quality of life

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INTRODUCTION

Gallstones are the most pervasive stone diseases in human body, primarily including cholecystolithiasis and bile duct stones [1]. According to statistics, the global incidence of gallstones is around 3%~11%, with observably increased prevalence in the middle-aged and elderly population [2,3]. Gallstones are dominantly cholecystolithiasis, occupying 55%-65% of the total cases [4]. Cholecystolithiasis is cholesterol gallstone or cholesterol-based mixed gallstone and

black pigment gallstone, which is susceptible to cause gallbladder infection and necrosis in the course of disease, and in severe cases, it can threaten the life and health of patients [5, 6]. At the present stage, the clinical treatment of cholecystolithiasis is mainly based on surgery. For smaller stones, they can be crushed directly in vivo by lithotripsy and excluded from the body, while larger stones can be taken out directly from the body [7]. With the development of medical technology, the effect of stone surgery is becoming more and more

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remarkable [8]. However, recent evidences have pointed out that some patients with gallstones have

As such, the effect of treatment will be reduced and the risk of poor prognosis will be increased enormously [10]. Hence, a valid intervention method is urgently needed in clinic to improve the effect of calculus surgery.

Looking up relevant studies, we found that nursing interventions yield notable improvement effects after most surgical treatments [11, 12]. Among them, high-quality nursing is a more detailed and personalized nursing service based on conventional nursing methods. It has been proved that it can dramatically improve the postoperative situation of patients with gastric cancer or heart bypass surgery [13, 14], but its value in stone surgery still lacks relevant research support. We believe that through high-quality nursing and more meticulous nursing service, the pain and negative emotion of postoperative patients with cholecystolithiasis can be effectively improved, and the effect and prognosis of operation can be improved. Therefore, relevant experimental analyses were carried out in this study, which will provide reliable theoretical evidences for future clinical treatment of patients with gallstone surgery.

DATA COLLECTION AND METHODS

Patient Data

From July 2017 to June 2019, 133 patients with gallstone surgery in our hospital from were selected as the participants, of which 76 patients were assigned into the research group (RG) for high-quality nursing during hospitalization, and the remaining 57 patients were allocated into control group (CG) for routine nursing. Approval was obtained from both the study participants and the hospital Medical Ethics Committee.

Patient Selection Criteria

Inclusion criteria: All patients met the diagnostic criteria of internal medicine for cholecystolithiasis, and were treated and operated in our hospital after diagnosis. All patients underwent laparoscopic surgery with complete case data and agreed to cooperate with the arrangement of medical staff in our hospital.

Exclusion criteria: Patients with surgical contraindication, drug allergies, gallbladder cancer, organ dysfunction, inability to self-care, mental and consciousness disorders were excluded, as well as the referred patients.

Nursing Methods

CG: Patients in CG were given routine nursing: the necessity, methods and safety of surgery were

obvious pain after operation, which has caused great negative emotions and patient resistance [9].

told to the patients before surgery, and the dietary habits of the patients were suggested. After the operation, the vital signs, medication and psychological state of the patients were interfered, so as to prevent and cure postoperative complications in time.

RG: All patients in RG received high-quality nursing. First, the nursing staff mastered the detailed information of the patients, understood the patients' physical condition, and helped the patients popularize disease knowledge before surgery, so as to help the patients build confidence and eliminate their anxiety. Also, patients were told about the key points of the operation and instructed to cooperate actively to improve compliance, thus improving therapeutic efficacy. After the operation, the nursing staff actively informed the patients about the operation to relax the mood of the patients and reduce their pressure, and close monitoring of the patient's physical condition was conducted after operation. Furthermore, patients were urged to take medicine in time, helped to eat healthily and have regular health check-ups.

Outcome Measures

The two series were compared regarding pain status, postoperative recovery, pain scores (visual analogue scale, or VAS), pain duration and frequency pre- and post-intervention, incidence of complications, psychological state scores pre- and post-intervention (Hamilton Anxiety Scale, or HAMA& Hamilton Depression Scale, or HAMD), as well as nursing satisfaction and postoperative quality of life (QOL).

STATISTICAL METHODS

The statistical analysis of data was processed by SPSS22.0, and the required pictures were plotted by Graphpad7. The counting data were expressed in the form of percentage (%), and the chi-square test was employed for inter-group comparisons. While the measurement data were expressed as mean \pm standard deviation, and the t-test was applied for inter-group comparisons. Significance was taken as $P < 0.05$.

RESULTS

Patient baseline data in the two series

Comparing the age, BMI, gender, living environment, education level, smoking history, drinking history, exercise habits, eating habits and

ethnic groups of the two groups, it was found that there was no statistical difference ($P > 0.05$). Table 1.

Table 1. General data [n(%)]

	Research group (n=76)	Control group (n=57)	t or X^2	P
Age (years old)			1.929	0.056
	43.7±1.6	44.2±1.3		
BMI (KG/cm ²)			0.089	0.929
	23.52±3.05	23.46±4.72		
Gender			0.132	0.716
Male	47 (61.84)	37 (64.91)		
Female	29 (38.16)	20 (35.09)		
Living environment			0.003	0.957
Urban	53 (69.74)	40 (70.18)		
City	23 (30.26)	17 (29.82)		
Education level			0.066	0.798
<High school	29 (38.16)	23 (40.35)		
≥High school	47 (61.84)	34 (59.65)		
History of smoking			0.166	0.683
Yes	44 (57.89)	35 (61.40)		
No	32 (42.11)	22 (38.60)		
History of drinking			0.191	0.662
Yes	52 (68.42)	41 (71.93)		
No	24 (31.58)	16 (28.07)		
Exercise habits			0.181	0.670
Yes	24 (31.58)	20 (35.09)		
No	52 (68.42)	37 (64.91)		
Eating habits			0.107	0.743
Regular	54 (71.05)	39 (68.42)		
Irregular	22 (28.95)	18 (31.58)		
Ethnicity			0.100	0.752
Han	68 (89.47)	50 (87.72)		
Ethnic minorities	8 (10.53)	7 (12.28)		

Analysis of Pain in the Two Series

The data showed that there were 1 involved pain, 1 wound pain and 2 shoulder pain in RG, totaling 4 patients. While there were 17 patients

reported pain in CG, specifically, 5 involved pain, 6 wound pain and 6 shoulder pain. It is clear that the number of patients with pain in RG was observably less than that in CG ($P < 0.001$). Table 2.

Table 2. Pain status of patients in the two series [n(%)]

	Resarch group (n=76)	Control group (n=57)	X ²	P
Involved pain				
Wound pain	1 (1.32)	5 (8.77)		
Shoulder pain	1 (1.32)	6 (10.53)		
Total	2 (2.63)	6 (10.53)		
	4 (5.26)	17 (29.82)	14.780	<0.001

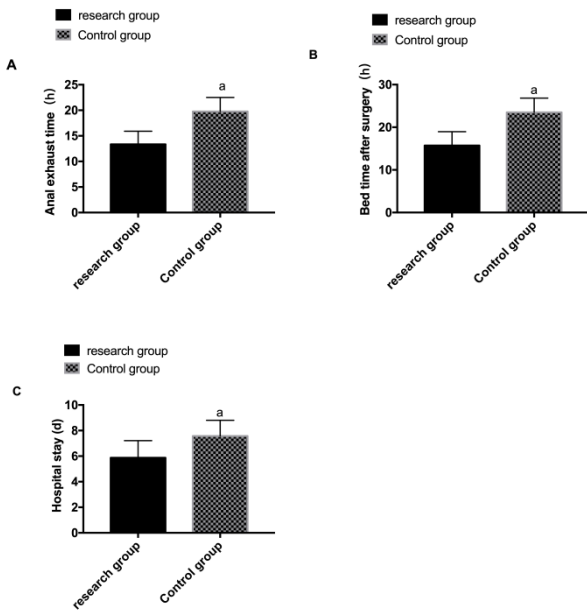
Postoperative Recovery of Patients in the Two Series

Postoperative recovery was compared between the two series. The data exhibited that the

1.

postoperative anal exhaust time, ambulation time and hospitalization time were shorter in RG than in CG ($P < 0.05$). Fig.

Fig. 1. Postoperative recovery of patients in the two series.



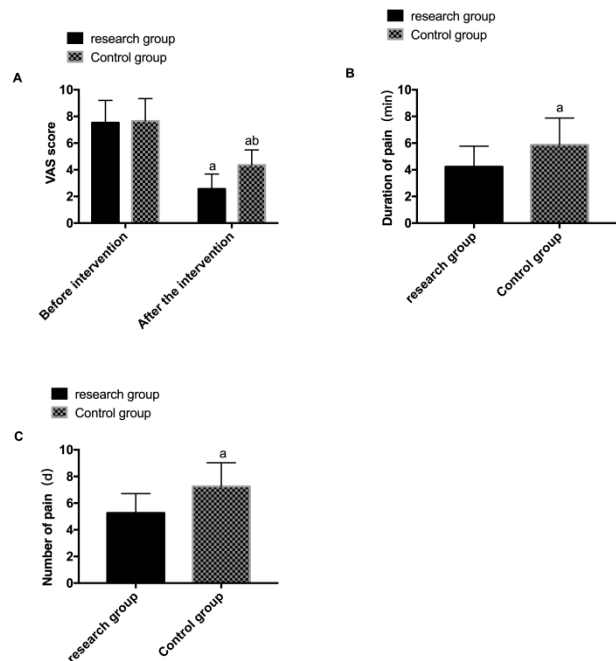
A: Postoperative anal exhaust time of patients in the two series. B: Postoperative ambulation time of patients in the two series. C: Hospitalization time of patients in the two series. Note: a: $P < 0.05$.

Pain Score, Pain Duration and Pain Frequency of Patients in the Two Series Pre- and Post-intervention

The two series were compared in pain scores, pain duration and pain frequency before and after

the intervention. The data revealed no evident difference between the two series before the nursing intervention ($P > 0.05$), but lower pain scores and shorter pain duration plus pain frequency in RG than in CG post intervention ($P < 0.05$). Fig. 2.

Fig. 2. Pain score, pain duration and pain frequency of patients in the two series pre- and post-intervention.



A: Pain scores before and after intervention in the two series. B: Pain duration of patients in the two series. C: Pain frequency of patients in the two series. Note: Both a and b indicates $P < 0.05$.

Incidence of Complications in the Two Series

Comparing the incidence of postoperative complications between the two series, it was found

that the total incidence was 3.95% in RG, which was evidently lower than 17.54% in CG ($P < 0.009$). Table 3

Table 3. Incidence of complications in the two series [n(%)]

	Research group (n=76)	Control group (n=57)	X ²	P
Hemorrhage	0 (0.00)	2 (3.51)		
Lung infection	2 (2.63)	3 (5.26)		
Incision infection	1 (1.32)	2 (3.51)		
Bile leakage	0 (0.00)	2 (3.51)		
Urinary system infection	0 (0.00)	1 (1.75)		
Total	3 (3.95)	10 (17.54)	6.828	<0.009

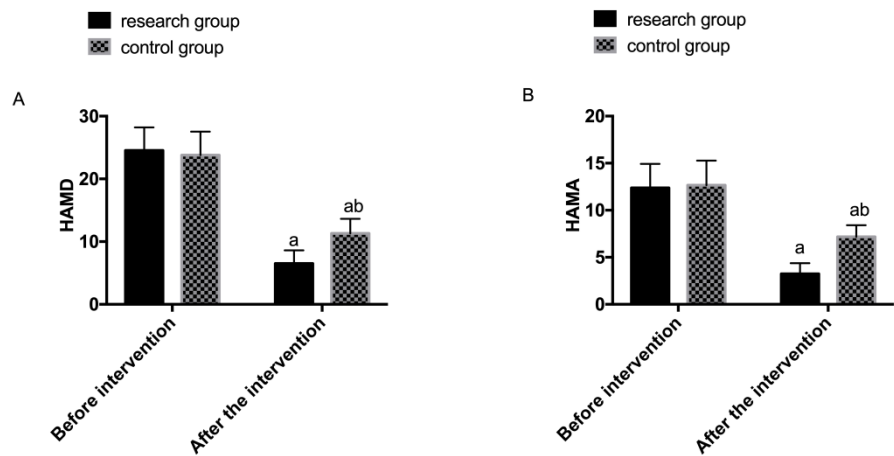
Psychological State Scores of Patients in the Two Series Pre- and Post-intervention

The psychological state scores of the two series of

patients pre- and post-intervention were compared and analyzed. It identified no noteworthy difference in depression and anxiety between the two series before intervention, but after nursing

Yin Zhang et al.
 Effect of High-quality Nursing Intervention on Bad Mood, Postoperative Pain and Quality of Life of Patients Undergoing Gallstone Surgery
 intervention, the depression and anxiety scores in RGdeclined noticeably and were dramatically lower than those in CG ($P < 0.05$). Fig. 3.

Fig. 3. Psychological state scores of patients in the two series pre- and post-intervention.



A: Depression scores before and after intervention in the two series. B: Anxiety scores before and after intervention in the two series.

Nursing Satisfaction in the Two Series after Intervention

The nursing satisfaction of the two series after intervention was counted. The data showed that

the satisfaction was 93.42% in RG and 66.67% in CG, which indicated that patients in RG were more satisfied with the nursing they received ($P < 0.001$). Table 4

Table 4. Nursing satisfaction in the two series after intervention [n(%)]

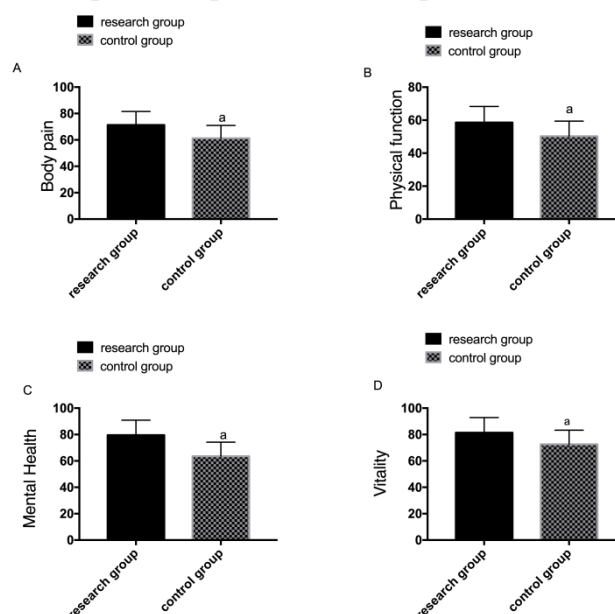
	Research group (n=76)	Control group (n=57)	X ²	P
Very satisfied	54 (71.05)	17 (29.82)		
Satisfied	17 (22.37)	21 (36.84)		
Improvement needed	3 (3.95)	10 (17.54)		
Dissatisfied	2 (2.63)	9 (15.79)		
Total			15.760	<0.001
satisfaction%	71 (93.42)	38 (66.67)		

Postoperative QOL of Patients in the Two Series

The postoperative QOL, which mainly assessed from the domains of bodily pain,physical function,

mental health, and vitality, showed that the postoperative QOL was remarkably better in RG than in CG ($P < 0.05$). Fig. 4.

Figure 4. Postoperative quality of life of patients in the two series.



A: Bodily pain of patients in the two series. B: Physical function of patients in the two series. C: Mental health of patients in the two series. D: Vitality of patients in the two series.

DISCUSSION

Cholecystolithiasis is a common biliary disease in clinic [15]. Gallbladder is an important digestive organ of human body, while gallstones will not only damage digestive function, but also have adverse effects on physiological function of patients [16]. However, with the continuous development of society and the change of people's living habits, the incidence of cholecystolithiasis is increasing year by year [17], and some even deteriorate into gallbladder cancer [18], which seriously reduce the QOL and threaten life and health of patients. Research shows that cholecystolithiasis have gradually become the main epidemiological and economic burden worldwide [19]. Although laparoscopic surgery has achieved certain results in the treatment of cholecystolithiasis, most patients are prone to uneasy and nervous emotions in the face of diseases, which, together with the pain caused by the disease, leads to increased complications and reduced therapeutic effect [20]. Therefore, it is of the essence to render necessary and comprehensive nursing intervention for patients while treating diseases. This time, we conducted a study on the influence of high-quality nursing intervention on adverse mood, postoperative pain and QOL of patients undergoing gallstone surgery, so as to provide a reliable and accurate theoretical experimental basis for the future clinical diagnosis and treatment of cholecystolithiasis.

First of all, we compared the age, BMI, gender, living environment, education level, smoking history, drinking history, exercise habits, eating

habits and ethnicity between the two cohorts of patients but found no statistical difference, suggesting that the two series of patients could carry out follow-up experimental analysis. The pain status of the two series was analyzed. The data showed that RG with high-quality nursing intervention had 1 involved pain, 1 wound pain and 2 shoulder pain, totaling 4 people, while CG with routine nursing had 5 involved pain, 6 wound pain and 6 shoulder pain, totaling 17 people. The number of patients suffered from pain in RG was enormously less than that in CG, suggesting that high-quality nursing can validly relieve the postoperative pain of patients with gallstones. When cholecystolithiasis occurs, patients will have symptoms such as epigastric pain, pancreatitis, biliary colic and jaundice [21], which leads to extreme physical discomfort, and reducing the pain of patients is more conducive to reducing complications and promoting therapeutic efficacy. Author Beets G [22] also pointed out that high-quality nursing can notably mitigate postoperative pain of colorectal cancer patients, which can prove our findings. Then, the postoperative recovery status of the two series was compared. It showed that the anal exhaust time, ambulation time and hospitalization time were shorter in RG than in CG, which further reflected the effect of high-quality nursing in profoundly improving patients' condition and accelerating their rehabilitation. Looking up the previous data, we found that high-quality nursing can also improve the recovery of prostate cancer [23]. We also made a comparative analysis of pre- and post-treatment pain scores, pain duration and pain

frequency between the two series. The data displayed that RG presented lower pain scores and shorter pain duration and pain frequency than CG, demonstrating that high-quality nursing can fully alleviate postoperative pain, effectively improve the nursing quality, and promote the patient's mentality to be stable, which has a great positive effect on disease recovery of patients. When comparing the incidence of postoperative complications, we found a total incidence of postoperative complications of 3.95% in RG, which was observably lower than 17.54% in CG, which on the one hand implies that high-quality nursing have more obvious advantages in improving the treatment effect and reducing complications, and on the other hand reflects the application value of high-quality nursing in the treatment of gallstones. Furthermore, we compared and analyzed the psychological state scores before and after the intervention between the two series. The results exhibited that after nursing intervention, the depression and anxiety scores in RG dropped dramatically and were lower than those in CG. We speculate that the pain and discomfort of the patients have been greatly alleviated, and the negative psychological state has been improved, so the psychological anxiety is relieved, which promotes the gradual restoration of a stable state of mind. As a common clinical disease, cholecystoliths can cause severe pain, nausea, stomach discomfort and other symptoms, which easily lead to patients' negative psychological emotions such as fear, confusion, irritability [24]. As a result, most patients also hold the attitude of resistance and rejection to medical staff. While by helping patients popularize disease knowledge, build confidence and eliminate anxiety before surgery [25], high-quality nursing can not only help patients to take the initiative and correct positive emotions, but also reduce patients' preparedness for medical staff and enhance their trust in hospitals, so as to be more cooperative with follow-up treatment and rehabilitation guidance. And our findings, too, speak volumes for themselves. Finally, we made statistics on the nursing satisfaction and QOL of the two series of patients after intervention. The results also showed that the patients in RG who adopted high-quality nursing had higher QOL and were more satisfied with their nursing methods, confirming that high-quality nursing has great clinical application prospect.

Collectively, high-quality nursing intervention can effectively alleviate the postoperative bad mood, reduce postoperative pain and improve the postoperative QOL of patients.

Of course, there are still some shortcomings due to the limited experimental conditions. For example, since the experimental period of this study is short, we cannot assess the long-term prognosis

of the two series of patients. Moreover, there are many other nursing interventions available in clinic, so it is not excluded that other nursing interventions may be more effective in treating patients with cholecystolithiasis. All in all, we will carry out more in-depth experimental investigation as soon as possible in view of the above deficiencies and obtain more comprehensive experimental results for clinical reference.

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