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Original Article

The effect of comfort nursing on liver function and nursing satisfaction of patients with liver cirrhosis

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Abstract: Objective: The goal of the present study was to explore and analyze the effect of comfort care on liver function and nursing satisfaction of patients with liver cirrhosis. Method: A total of 122 patients with liver cirrhosis addmitted to our hospital from June 2018 to June 2020 were equally divided into a general care group (GC) and a comfort care group (CC) according to the principle of randomization. Routine care intervention was given in the GC group, and the CC group received both comfort care intervention and routine care intervention. The care effects regarding liver function and nursing satisfaction, etc. were analyzed and compared between the two groups. Results: After care, both SAS score and SDS score in the two groups decreased, and the CC group had better scores of SAS and SDS as compared to the GC group (P<0.05). After care, the ALT and AST levels of the two groups all decreased. In the GC group, the ALT and AST demonstrated significantly better levels than those in the GC group (P<0.01). After care, each aspect in the CC group had better scores as compared to that in the GC group (P<0.05). After care, in the CC group, all the physiology, psychology, society and other index scores were significantly better than those in the GC group (P<0.05). Patients in the CC group had higher treatment compliance scores in comparison to patients in the GC group [(89.86±6.45) vs (64.46±13.75), P<0.01]. In the CC group, the nursing satisfaction (93.44%) was significantly higher than 78.69% in the GC group (P<0.01). Conclusion: Comfort care is a preferred nursing method for patients with liver cirrhosis in terms of elimination of negative emotions, recovery of liver function, quality of life improvement, treatment compliance, and nursing satisfaction.

Keywords: Comfort care, liver cirrhosis, liver function, nursing satisfaction

Introduction

Liver cirrhosis, a chronic liver disease with a high clinical incidence, is formed by multiple factors, being mainly caused by nutritional disorders, alcoholism, and viral hepatitis, etc. Its main pathological manifestations are diffuse liver injury, destruction of the lobules of the liver, pseudo lobules, hyperplasia of connective tissue, etc., and the main clinical symptoms consists of fatigue, abdominal distension, jaundice, liver damage, ascites, etc. [1, 2]. At present, a radical cure for the clinical treatment of liver cirrhosis remains unknown to relieve the disease. However, liver cirrhosis is characterized by easy recurrence, rapid disease development, and poor prognosis, etc. In the middle and late stages of liver cirrhosis, secondary infections, gastrointestinal bleeding and other complications appear in succession, which threatens the health and lives of patients [3, 4]. Studies have shown that appropriate care significantly helps patients with liver cirrhosis relieve their negative emotions, strengthen their awareness of liver cirrhosis, ensure their good diet and rest and improves their treatment compliance, which has a positive impact in improving liver function recovery, reducing complications and preventing repetition of liver cirrhosis symptoms [5, 6]. Comfort nursing care theory mainly refers to the idea that nurses can strengthen the patient's physical, psychological and other states to maintain a positive mood during treatment, thereby reducing unpleasant events. The current comfort care theory mainly includes four aspects. The first is physical comfort, the second is psychological comfort, the third is social comfort, and the fourth is soul

comfort. Despite the theoretical research on comfort care nursing, it is not mature yet, and the end goal is to strengthen the analysis of nursing wards, formulate a more comfortable care system, create a comfortable care culture, achieve favorable clinical results and meet the needs of patients. Comfort care is a care model that provides patients with holistic individual care regarding their psychology, physiology, and environment, etc. [7]. In view of this, the present study was being conducted on 122 patients with liver cirrhosis in our hospital from June 2018 to June 2020 to test the effect of comfort care on liver function and nursing satisfaction.

Materials and methods

General materials

A total of 122 patients with liver cirrhosis admitted to our hospital from June 2018 to June 2020 were selected and equally divided into a general care group (GC group) and a comfort care group (CC group) according to the principle of randomization. The ethics committee in our hospital approved this study, and all patients were informed of this study, willingly participated and signed the informed consent letter.

Inclusion/exclusion criteria

Inclusion criteria: patients who were diagnosed with liver cirrhosis after clinical diagnosis; patients with complete clinical data; patients without any conscious disorders, communication disorders, or history of mental illness.

Exclusion criteria: patients with severe organ diseases such as in the heart, lung, kidney, etc.; patients with poor compliance; female patients during lactation or pregnancy; patients with liver cancer.

Methods

Patients in the GC group received routine care intervention, the main treatments were to instruct them on diet and medication, monitor vital signs, teach and promote disease knowledge and health education, inform patients of precautions, and conduct specific treatment for clinical symptoms of patients.

Comfort care intervention was given in the CC group, except from the routine care intervention. Specific methods were as follows: 1) Environmental comfort care: The temperature, humidity and light in the wards were adjusted to an appropriate level, and we regularly opened the windows as to keep the indoor air fresh. The mattress was comfortable in elasticity and hardness, with soft, clean and dry bedding. Patients are in a comfortable lying down position, and the bed curtain was set between the beds to allow patients to have their own space and increase privacy. In addition, we adjusted the treatment and care times, and medical staff paid attention to keeping the ward quiet to ensure that patients have enough sleep. 2) Psychological comfort care: The disease's long course, easy recurrence, and lack of treatment for liver cirrhosis make patients and their families have a great financial burden and bring great physical and psychological pain to patients, and then their negative emotions such as anxiety, depression, and fear, etc. frequently appear in their heart, which results in the loss of confidence and poor clinical efficacy. Care staff must keep close communication with patients and their families, remain respectful and have understanding for their attitude towards patients, acquire about the real-time mental activities of patients, understand their own thoughts and family relationships, and perform individual psychological counseling based on their individual conditions, which relieves their negative emotions, keeps their moods comfortable and enhances treatment confidence. 3) Physical comfort care: When patients have symptoms such as edema of the lower limbs and buttocks, care staff can lay air cushions or cotton pads to raise the lower limbs and assist patients in turning over for once every 2 hours. During this process, they pay attention to gentle movements. When patients have scrotal edema, the scrotum is held up with a brace to promote the reduction of swelling. The deposition of bile salts on the skin causes skin itching in patients, and care staff must repeatedly tell patients to wear cotton underwear, bathe in warm water, do not scratch their skin, and apply anti-itch medicine if necessary. In addition, care staff pay attention to patients' oral care, and instruct patients to rinse or brush their teeth in time after meals to reduce the chance of oral infection. 4) Social comfort care: Care staff helps patients promote their comfort in social relations, provide them with support and care through their families and interper-

Table 1. Comparison of general materials

Factors		GC group (n=61)	CC group (n=61)	χ^2/t	p
Gender	Male	37	35	0.1356	0.652
	Female	24	26		
Age (years)		53.24±5.47	54.89±5.39	1.678	0.741
Course (years)		10.24±2.42	10.17±2.37	0.161	0.635
BMI (kg/m^2)		22.42±2.18	22.65±2.05	0.600	0.967
Disease causes	Viral	32	30	0.2127	0.855
	Alcoholic	12	12		
	Toxic	13	14		
	Other	4	5		
Education	Primary school	17	18	0.1651	0.736
	Middle/Vocational school	26	27		
	Three years diploma or above	18	16		

sonal relationship, reduce their mental burden, and increase their confidence in treatment. In the meantime, care staff explain this treatment to encourage their families, relatives and friends to express spiritual support.

Observation indexes

Self-rating anxiety scale (SAS) and self-rating depression scale (SDS) [8] were employed to evaluate their mental state in both groups before and after care. Alanine aminotransferase (ALT) levels and aspartate aminotransferase (AST) levels were used to evaluate their liver function in the two groups before and after care. Through the SF-36 quality of life scale [9], care staff assessed the quality of life of patients in both groups before and after care, including physics, physiology, psychology, and society, with 100 points each aspect. The higher the score, the better the quality of life. The self-made treatment compliance questionnaire for patients with liver cirrhosis was applied to evaluate the compliance of patients in both groups. This questionnaire consisted of work and rest exercise, reasonable diet, tobacco and alcohol control, rational use of drugs, and regular review, with 100 points in each aspect. The score was proportional to treatment compliance. A self-made nursing satisfaction questionnaire was used to investigate nursing satisfaction, which was divided into very satisfied, relatively satisfied, satisfied, and dissatisfied.

Statistical methods

All the data in this study was statistically analyzed by the SPSS 18.0 software. The measurement data was described by (x ± sd) and examined using t test, and the enumeration data was described by % and examined for difference using χ^2 test. Significance was declared at a *P* value of <0.05.

Results

General information comparison

The comparison of general data such as gender, age, etc. showed no distinctive difference between the two groups (P>0.05). See **Table 1**.

Comparison of SAS score and SDS score before and after care

Before care, the SAS score and SDS score were homogeneous in the two groups (P>0.05). After care, the SAS score and SDS score in the two groups all decreased. The SAS score and SDS score in the CC group were superior to the GC group (P<0.05). See **Figure 1**.

Comparison of liver function before and after care

Before care, the ALT levels and AST levels in the two groups were not significantly different (P>0.05). After care, both the ALT levels and AST levels in the two groups decreased. The ALT and AST levels in the CC group were significantly better than those in the GC group (P<0.01). See **Table 2**.

Comparison of the quality of life before and after care

Before care, no significant difference was discovered in physical, physiological, psychological, and social aspects between the two

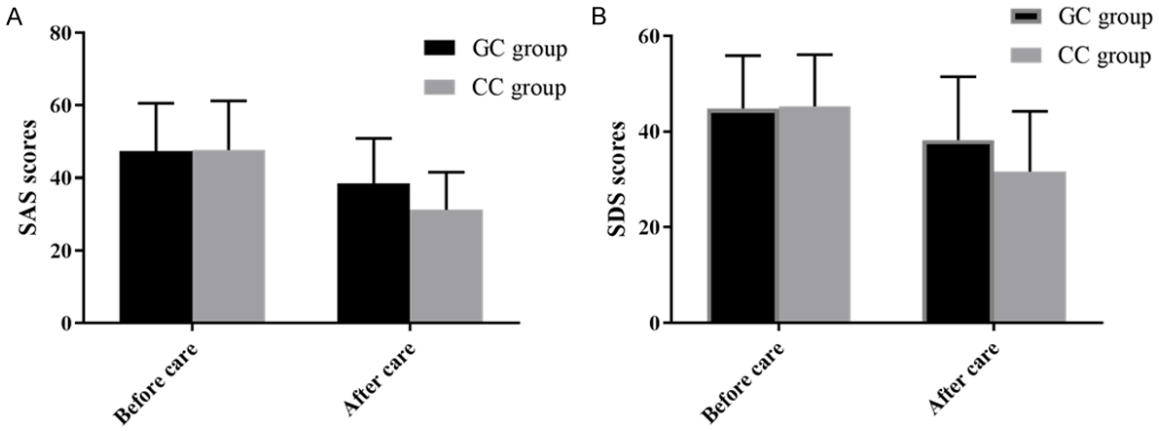

Figure 1. Comparison of SAS scores and SDS scores before and after care in the two groups. (A) Comparison of SAS scores before and after care. The X-axis represented before and after care, and the Y-axis represented the SAS score. It can be seen from (A) that no significant difference was discovered in SAS scores between the two groups before care, and the SAS scores in the CC group were lower after care. *P<0.05. (B) Comparison of SDS scores before and after care. The X-axis represented before and after care, and the Y-axis represented SDS score. It can be seen from (B) that no significant difference was discovered in the SDS scores before care, and the CC group had lower SDS score after care. **P<0.01.

Table 2. Comparison of liver function before and after care

Group	ALT (U/L)		AST (U/L)	
	Before care	After care	Before care	After care
GC group (n=61)	97.83±21.23	58.37±20.25	97.24±21.24	57.92±19.83
CC group (n=61)	98.05±20.97	36.13±15.27	96.86±20.89	35.28±18.24
t	0.058	6.849	0.100	6.563
p	0.563	<0.01	0.426	<0.01

Table 3. Comparison of the quality of life before and after care

Quality of life score		GC group (n=61)	CC group (n=61)	t	p
Body	Before care	57.93±5.95	58.11±5.73	0.170	0.961
	After care	66.74±6.42	76.24±5.15	9.015	<0.01
Physiology	Before care	55.25±7.53	55.47±7.48	0.162	0.964
	After care	63.56±6.12	75.15±6.82	9.879	<0.01
Psychology	Before care	60.15±5.28	60.32±5.53	0.174	0.953
	After care	67.85±5.25	79.18±7.82	9.395	<0.01
Society	Before care	57.83±7.13	58.16±6.96	0.259	0.914
	After care	65.15±6.67	76.64±7.14	9.184	<0.01

groups (P>0.05). After care, each aspect in the CC group had better score as compared to that in the GC group (P<0.05). See **Table 3**.

Comparison of treatment compliance

A significantly better compliance level was observed in the CC group as compared to the GC group [(89.86±6.45) vs (64.46±13.75), P<0.01]. See **Figure 2**.

Comparison of nursing satisfaction

The nursing satisfaction in the CC group (93.44%) was significantly higher than 78.69% in the GC group (P<0.01). See **Table 4**.

Discussion

As a chronic liver disease, liver cirrhosis is a result of multiple liver diseases that develop to

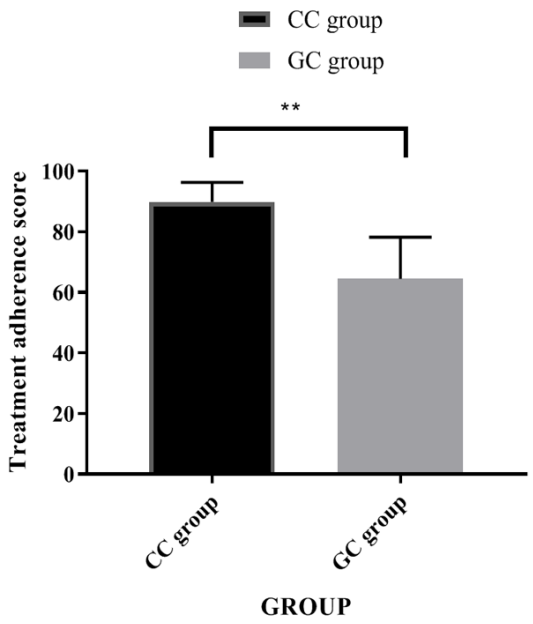

Figure 2. Comparison of treatment compliance. The X-axis represented CC group and GC group, and the Y-axis represented treatment compliance score. It can be seen from the figure that the CC group had significantly higher score in treatment compliance as compared to the GC group. **P<0.01.

this end stage. The clinical manifestations are mainly portal hypertension and liver function damage. It is characterized by a long course, a severe disease, with poor prognosis, and easy recurrence, etc., which enormously affects patients' life safety and quality of life [10]. At present, no radical clinical treatment for liver cirrhosis is known, and its clinical treatment mainly focuses on early detection and prevention of disease progression. Studies have shown that liver cirrhosis induced by different causes are treated with its corresponding treatment methods, which are critical to inhibit the development of the disease and improve the quality of the prognosis [11, 12]. A great many studies have reported that comfort care helps patients with liver cirrhosis effectively improve quality of life and alleviate negative emotions, which has positive significance in improving the treatment efficacy [13-15]. A total of 122 patients with liver cirrhosis in our hospital from June 2018 to June 2020 were included in this study, and comfort care was applied to these patients to explore and analyze the effects of comfort care on their liver function and nursing satisfaction.

Analysis was performed on the following factors: 1) Physiological factors: The clinical manifestations of liver cirrhosis caused physical pain such as fatigue, loss of appetite, skin itching, sleep disturbance, limb edema, etc. 2) Psychological factors: Long disease course and easy recurrence of liver cirrhosis and lack of social support in relationships make patients have negative emotions such as anxiety, depression, etc. 3) Environmental factors: As an organization that provides medical services, hospitals have complex staff with high mobility, which results in the environment being noisy, so it is difficult for patients to have enough rest [16, 17]. In view of the above-mentioned discomfort factors, comfort care is provided to patients in psychological, physical, environmental, and social aspects to reduce the occurrence and development of complications, eliminate their negative emotions, improve patients' ward environments and provide them with targeted diet and medication treatment, which improves their social relationship support, enhances their confidence in treatment, ensures adequate sleep and positive treatment attitudes, minimizes their physical pain, and creates a comfortable treatment state for patients [18].

It has been reported in the literature that, as a severe disease with major damage, if not treated and cared for in a timely manner, liver cirrhosis will not only bring severe damage to the life and health of patients, but also seriously affect the mental health of patients [19]. Most patients with liver cirrhosis have negative emotions such as anxiety, fear, depression, etc., which causes patients to lose confidence in treatment and enormously reduces the therapeutic effect and prognosis [20]. Through the study, it was found that the SAS score and SDS scores in the CC group were significantly better than those in the GC group (P<0.05), which indicated that comfort care could effectively eliminate patients' negative emotions and enhance their confidence in treatment. What's important to note that after care, the liver function and quality of life in both groups were all improved. The ALT level, AST level, the quality of life cores in physics, physiology, psychology, society and the like in the CC group were significantly better than those in the GC group (P<0.01). The results of this study were supported by extensive foreign studies, suggesting

Table 4. Comparison of nursing satisfaction

Group	Very satisfied	Generally satisfied	Satisfied	Dissatisfied	Satisfaction rate
GC group (n=61)	18	22	17	4	93.44%
CC group (n=61)	11	17	20	13	78.69%
χ^2					10.5442
p					0.017

that comfort care can eliminate patients' negative emotions, improve their confidence and cooperation in treatment, and significantly enhance their treatment effects and quality of life [21, 22]. Furthermore, the current study also revealed that the CC group had higher treatment compliance scores as compared to the GC group [(89.86±6.45) vs (64.46±13.75)], and its nursing satisfaction rate (93.44%) was significantly higher than 78.69% in the GC group (P<0.01). These results are in conformity with the results of Zhang et al [23] wherein they proposed that nursing satisfaction, clinical indicators and quality of life scores under comfort care in patients with decompensated liver cirrhosis showed definite clinical efficacy. It is proved that comfort care helped patients with liver cirrhosis improve their treatment compliance and nursing satisfaction, which had a positive impact on improving the clinical efficacy and nurse-patient relationship of patients with liver cirrhosis. The major limitation of this study was an inability to carry out a long-term follow-up. This may lead to investigation bias in which long-term quality of life and survival rate data are absent. Further trials involving larger sample populations and longer-term follow-ups will be needed.

In summary, comfort care is a preferred nursing method to help patients with liver cirrhosis eliminate anxiety, depression and other negative emotions, promote the recovery of liver function, improve quality of life, treatment compliance, and nursing satisfaction, which had positive significance in the improvement of treatment efficacy and prognosis.

Disclosure of conflict of interest

None.

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