

## Review Article

# The effect of high-quality nursing, on the pruritus, quality of life, and nursing satisfaction of patients with CLD-induced skin pruritus

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**Abstract:** Objective: To explore the role of high-quality nursing (HQN) on the skin pruritus and nursing satisfaction of patients with cholestatic liver disease (CLD)-induced skin pruritus. Methods: Patients with CLD were recruited for this study at our hospital from May 2018 to December 2019 and placed into a research group (RG) (38 cases) and a control group (CG) (35 cases) according to the nursing method each received. The RG underwent HQN intervention. The CG underwent routine nursing intervention. The nursing effect, QOL, sleep quality, and the satisfaction with the nursing of the pruritus symptoms in the two groups were compared. Results: The total effective rates of the pruritus nursing and the degree of satisfaction with the nursing in the RG were significantly higher than they were in the CG ( $P < 0.05$ ), and the onset time and skin improvement time were significantly lower than they were in the CG ( $P < 0.05$ ). There was no apparent difference in the DLQI, AIS, SAS, or SDS scores between the RG and the CG before the nursing ( $P > 0.05$ ). After 3 months of treatment, the DLQI, AIS, SAS, and SDS scores in the RG and the CG were lower than they were before the treatment ( $P < 0.05$ ), and the DLQI, AIS, SAS, and SDS scores in the RG after the nursing were lower than they were in the CG ( $P < 0.05$ ). Conclusion: HQN for patients with CLD is effective and can effectively relieve the skin pruritus symptoms and improve the patients' satisfaction with the nursing and their quality of life.

**Keywords:** High-quality nursing intervention, CLD induced skin pruritus, nursing satisfaction, quality of life

## Introduction

Pruritus is recognized as a common symptom that brings great pain to patients with cholestatic liver disease (CLD), but its harm is often underestimated [1, 2]. Pruritus often affects patients' QOL, leading to severe insomnia, fatigue, depression, and even suicide [3]. For some patients, intractable pruritus has become an indication for liver transplantation, even if liver failure has not yet occurred. Once it occurs, it can easily cause negative emotions, reduced compliance, increased physical and mental burdens, and a reduced quality of life, all of which are not conducive to disease treatment [4-6]. However, the exact pathogenesis of CLD complicated with skin pruritus is still unclear, so we lack a specific treatment for it [7]. Although the research on CLD skin pruritus is progressing, its etiology is still

unclear, so its therapy and nursing are still limited. If the nursing is done improperly, it will seriously threaten the patients' health [8].

High-quality nursing (HQN) is a new nursing concept which emphasizes a patient-oriented approach, making nursing plans according to the actual situation of patients, guiding nursing practice, and improving nursing quality [9, 10]. With the continuous development of modern medical care, some researchers believe that strengthening HQN service is conducive to improving the clinical symptoms of pruritus patients and improving patient prognosis [11]. In recent years, we have tried to implement high-quality care for patients with skin pruritus caused by CLD, and it has been preliminarily shown to be effective.

In order to further explore the clinical effect of HQN for CLD skin pruritus, 73 patients with

CLD skin pruritus admitted to our hospital were recruited for this study to undergo different nursing methods. We analyzed the application effect of the HQN mode to provide a clinical reference.

### Materials and methods

#### *General data*

From May 2018 to December 2019, 73 patients with CLD were recruited for this study, including 40 men and 33 women, ranging in age from 30-68 years, and with an average age of  $48.56 \pm 15.17$  years. According to the nursing methods each received, they were grouped into the research group (RG) (38 cases) and the control group (CG) (35 cases). There were no significant differences in age, sex, or course of disease between the RG and the CG ( $P > 0.05$ ). The patients in the study each signed an informed consent form, and the study was approved by our hospital's ethics committee. Inclusion criteria: Patients who met the diagnostic criteria for primary liver disease and skin pruritus [12], patients under 70 years old, patients who had jaundice lasting for more than half a year, patients who had not taken any corticosteroid hormone one week before the treatment, patients who did not use any histamine drugs or external corticosteroid preparations one week after the treatment, patients without any serious primary diseases or chronic consumptive diseases such as heart, brain, kidney, or endocrine diseases. Exclusion criteria: Patients with mental diseases, patients with other primary skin diseases, patients with allergies to the drugs used in this study, patients with acute infections or other active diseases.

#### *Nursing methods*

The CG with 35 patients received routine nursing care, mainly including disease observation, physical sign monitoring, treatment for adverse reactions, and the administration of medication nursing according to doctor's advice. The 38 patients in the RG underwent HQN in addition to the routine nursing the CG received. The details are as follows: (1) After the patients were admitted to the hospital, the nursing staff actively communicated with the patients and their families and made a comprehensive evaluation to find and determine the

predisposing factors, allergy history, medication history, and the living and eating habits of the patients before the onset of the disease. They recorded the patient data in detail and provided personalized and targeted guidance to the patients and their families according to the HQN concept. (2) Sleep and pruritus nursing: Pruritus of skin has a serious impact on patients' daily rest. In this regard, the concept of HQN service required a strict control of the control room's humidity and temperature in the control room environment, good ventilation, and fresh air. Flowers were not allowed to be placed in the rooms, but some green plants could be properly placed to avoid skin allergies caused by the patients' contact with pollen. Skin pruritus nursing knowledge was introduced to the patients' families. When the patient could not tolerate the pruritus, it was necessary to stop the scratching, apply external ointment promptly, and administer the medicine reasonably. Glucocorticoid drugs or antihistamines were applied before the patient went to bed. If the family members were worried about adverse hormone reactions, the nursing staff paid attention to the related instructions. The nursing staff reminded the patients to cut their fingernails frequently, keep their hands clean, avoid washing with super-heated or super-cooled water, avoid smearing their bodies with chemicals (such as soap and bath lotion), and to wear comfortable and loose cotton clothes. For the patients with pruritus who were unable to scratch, they were extremely prone to experience negative emotions, such as excessive irritability, depression, and anxiety, which seriously affects the quality of their sleep. Therefore, based on the HQN service concept, the nursing staff appeased the patients promptly, distracted the patients' attention and helped the patients maintain good physical and mental states. If a patient was agitated, safety protection work was performed to avoid unexpected injuries. Acousto-optic stimulation was avoided as much as possible to ensure the patients have sufficient rest and sleep. If necessary, some soft music could be played to help them sleep. (3) Diet nursing: According to the patient's dietary preferences, a scientific and reasonable diet plan was formulated. The intake of food containing allergenic substances, such as eggs, kelp, spices, fish, and greasy and spicy food was inhibited. The patients were asked to follow the

**Table 1.** Clinical patient data in the RG and the CG

Group	RG (n=38)	CG (n=35)	t value	P value
Age	48.23±14.41	48.59±16.45	0.099	0.921
Gender			0.007	0.933
Male	21	19		
Female	17	16		
Course of disease (month)	28.43±5.73	28.29±5.19	0.109	0.913
ALP (IU/L)	278.59±36.59	280.08±32.45	0.183	0.855
GGT (IU/L)	378.49±41.29	379.41±43.18	0.093	0.926

**Table 2.** A comparison of the antipruritic onset times and the skin improvements time between the two groups of patients

Group	Antipruritic onset time (min)	Skin improvement time (d)
RG (n=38)	9.41±3.59	3.49±2.61
CG (n=35)	16.18±4.79	6.31±3.64
t value	6.686	2.524
P value	< 0.05	< 0.05

principle of easy digestion and a light diet, and to eat more green fruits and vegetables to ensure smooth defecation. (4) Psychological nursing: The nursing staff actively maintained cordial communication with the patients and their families, give targeted psychological support, emotional support, encouragement, and comfort during the process of the patients' admission to hospital for treatment, diverting the patients' attention from the diseases through consciousness transfer and psychological suggestion therapy, cooperating closely with their families, and keeping the patients in a good state of mind. Taking patients who have been cured successfully as an example, the patients and their families' belief in a cure was established.

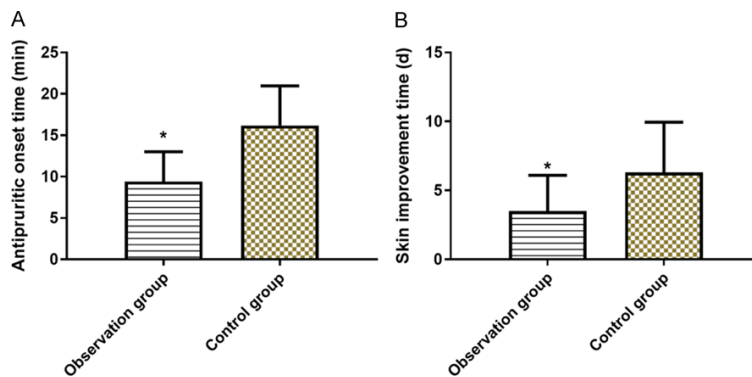
#### Outcome measures

(1) The nursing effects on the pruritus symptoms were compared between the RG and the CG (markedly effective, effective and ineffective). The markedly effective meant that after the nursing, the skin pruritus basically disappeared. After effective nursing, the patients' skin pruritus symptoms were improved. After ineffective nursing, the patients' skin pruritus symptoms did not change significantly or even worsened. The sum of the markedly effective and the effective is the total effective rate. The

antipruritic onset and skin improvement times were compared between the RG and the CG. The QOL scores in the RG and in the CG were compared: The Dermatology Life Quality Index (DLQI) scale [13] was applied to evaluate the QOL of the patients. It includes six aspects: psychology, physiology, interpersonal relationships, social activities, treatment, family, and occupation. A total of 10 questions with a 4-grade scoring system were applied with 0-3 points according to the severity (0 for none, 1 for mild, 2 for serious, and 3 for very serious). The total score from the 10 questions was taken as the total score for the comprehensive evaluation. The high score of the measurement correlated closely with the poor quality of life. The sleep quality scores of the RG and the CG were compared: the sleep quality of the patients was evaluated using the Athens Insomnia Scale (AIS) [14]. The scale was generally divided into two types of evaluation content: one is night sleep, including sleep time, recovery at night, early awakening, total sleep time and total sleep quality; another one is the impact of daytime sleep quality, including daytime mood, daytime body function, and daytime sleep. A total of 8 items were scored: no sleep disorder, < 4 points; suspicious insomnia, 4-5 points; insomnia, ≥ 6 points. The satisfaction of the RG and the CG of the patients with the nursing was observed: the self-made questionnaire was used to investigate the satisfaction of the patients with the nursing, and the satisfaction rates of the RG and the CG of patients with the nursing were compared. The total satisfaction rate = (very satisfied+generally satisfied)/total cases × 100%.

#### Statistical analysis

SPSS 22.0 was applied to test the data obtained in this study. The counting data were represented as n% and tested using chi-square tests. The measurement data were represented as (x±s) and tested using t-tests. A difference was statistically significant when  $P < 0.05$ .



**Figure 1.** A comparison of the antipruritic onset times and skin improvements time between the two groups of patients. A. The antipruritic onset time in the RG was significantly lower than it was in the CG ( $P < 0.05$ ). B. The skin improvement times in the RG were significantly lower than they were in the CG ( $P < 0.05$ ). Note: \*indicates compared with before the nursing,  $P < 0.05$ .

**Table 3.** A comparison of the quality of life scores

Group	Before nursing	After nursing
RG (n=38)	16.13±5.87	5.48±4.13*
CG (n=35)	16.57±4.96	7.79±4.58*
t value	0.344	2.266
P value	0.732	0.027

Note: \*indicates compared with before the nursing,  $P < 0.05$ .

**Table 4.** Comparison of the sleep quality scores between the RG and the CG before and after the nursing

Group	Before nursing	After nursing
RG (n=38)	11.78±4.27	4.35±2.87*
CG (n=35)	12.08±5.18	5.97±3.69*
t value	0.787	2.103
P value	0.271	0.039

Note: \*indicates compared with before the nursing,  $P < 0.05$ .

## Results

### Patient clinical data in the RG and CG

There were no significant differences in terms of age, sex, course of the disease, ALP, or GGT between the two groups ( $P > 0.05$ ). See **Table 1**.

### Comparison of the antipruritic onset times and the skin improvement times between the two groups of patients

The comparison of the antipruritic onset times and the skin improvement times between the

RG and the CG before and after the treatment showed that the times in the RG were significantly lower than they were in the CG ( $P < 0.05$ ). See **Table 2** and **Figure 1**.

### Comparison of the quality of life scores between the two groups of patients before and after the nursing

Our comparison of the quality of life scores between the RG and the CG before and after the nursing showed that there was no evident difference in the DLQI scores between the RG and the CG before the nursing ( $P > 0.05$ ). The DLQI

scores of the RG and the CG after 3 months of treatment were lower than they were before the treatment ( $P < 0.05$ ), and the DLQI scores of the RG after the nursing were lower than those of the CG ( $P < 0.05$ ). See **Table 3**.

### A comparison of the sleep quality scores between the RG and the CG before and after the nursing

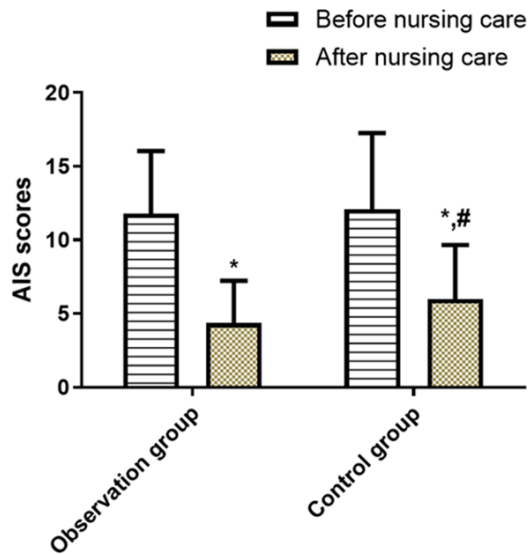
Our comparison of the quality of life scores between the RG and the CG before and after the nursing showed that there was no significant difference in the AIS scores between the RG and the CG before the nursing ( $P > 0.05$ ). The AIS scores of the RG and the CG after 3 months of treatment were lower than they were before the treatment ( $P < 0.05$ ), and the AIS scores of the RG after the nursing were lower than they were in the CG ( $P < 0.05$ ). See **Table 4** and **Figure 2**.

### Comparison of the efficacy of the pruritus before and after treatment

The comparison of the curative effect of pruritus before and after treatment showed that the total effective rate of the nursing care in the research group was significantly higher than it was in the control group ( $P < 0.05$ ), as shown in **Table 5**.

### A comparison of the nursing satisfaction rates between the two groups of patients

After the nursing, the total satisfaction rate of the research group was 94.74, and of the rate



**Figure 2.** A comparison of the sleep quality scores between the RG and the CG before and after the nursing. There was no significant difference in the AIS scores between the RG and the CG before the nursing ( $P > 0.05$ ). After 3 months of treatment, the AIS scores in both groups were lower than they were before the treatment ( $P < 0.05$ ), and the AIS scores in the RG after the nursing were lower than they were in the CG ( $P < 0.05$ ). Note: \*indicates compared with before the nursing,  $P < 0.05$ . #indicates compared with before the nursing,  $P < 0.05$ .

in the control group was 71.43, so the satisfaction rate of the patients in the RG was higher than it was in the CG ( $P < 0.05$ ), as shown in **Table 6**.

#### A comparison of the SAS and SDS scores between the two groups

Before the intervention, there was no significant difference in the mental health status (the SAS and SDS scores) between the RG and the CG ( $P > 0.05$ ). After the intervention, the SAS and SDS scores in the two groups were lower than they were before the intervention, and the scores in the RG were lower than they were in the CG ( $P < 0.05$ ), as shown in **Table 7**.

#### Discussion

Cholestatic pruritus is more common in patients with primary biliary cirrhosis than in patients with primary hard cholangitis, more common in women than in men, and the pruritus symptoms are more severe in women than in men. The degree of pruritus changes

according to one's circadian rhythm, and it usually increases in the afternoon, evening, and during the first half of the night. The frequency and intensity of pruritus are not related to the severity of cholestasis [15, 16]. Once skin pruritus complicated by CLD appears, it will not spontaneously resolve unless there is active and effective treatment [17, 18]. If pruritus cannot be effectively controlled, the patient will scratch and rub involuntarily, which will lead to scratching and scabbing on the skin, often causing infections due to the scratching and skin damage, even affecting sleep due to extreme itchiness, and increasing the patient's pain [19-21]. Therefore, it is particularly important to find the appropriate nursing methods for patients with CLD and with skin pruritus [22].

The HQN service is a brand-new nursing concept, the core of which is people-oriented and which plays a very prominent role in clinical nursing [23]. In this study, under the HQN mode, the nurses were required to change passive nursing into active nursing, optimizing various nursing operations in the process of admission for the treatment of skin pruritus caused by CLDs, and formulating a series of targeted personalized nursing measures, which are widely applied in clinical pediatrics to make up for the deficiencies of routine nursing, overcoming defects, consolidating basic nursing, optimizing various operation details, implementing the concept of HQN service, and allowing patients to obtain the maximum benefits in the process of admission for treatment and nursing. The results show that the total effective rate of nursing care in the RG was 76.32%, and the nursing satisfaction rate was 94.74%, which were all controlled, indicating that HQN care can significantly improve the treatment effect and satisfaction rate of patients with CLD and skin pruritus. However, the antipruritic onset time and skin improvement time in the RG were significantly lower than they were in the CG ( $P < 0.05$ ), indicating that the application effect of HQN service is exact and plays a vital role in improving the symptoms of patients with CLD-induced skin pruritus. Local skin damage caused by pruritus in patients with liver diseases will not only cause the patients pain, but it will also easily cause infections, seriously affecting the patient's quality of life. This study found that



**Table 5.** A comparison of the pruritus efficacy before and after the treatment

Group	Markedly effective	Effective	Ineffective	Total effective rate
Research group (n=38)	18 (47.37)	11 (28.95)	9 (23.68)	29 (76.32)
Control group (n=35)	7 (20)	10 (28.57)	17 (48.57)	18 (51.43)
$\chi^2$ value	4.921			
P value	0.027			

**Table 6.** A comparison of the nursing satisfaction rates between the two groups of patients

Group	Very satisfied	Generally satisfied	Dissatisfied	Satisfaction
RG (n=38)	25 (65.79)	11 (28.95)	2 (5.26)	36 (94.74)
CG (n=35)	12 (34.29)	13 (37.14)	10 (28.57)	25 (71.43)
t value	7.206			
P value	0.007			

**Table 7.** A comparison of the SAS and SDS scores between the two groups

Group	SAS score		SDS score	
	Before nursing	After nursing	Before nursing	After nursing
RG (n=38)	63.25±12.18	54.51±10.35*	64.18±10.37	55.23±11.15*
CG (n=35)	62.89±13.11	48.34±9.51*	64.58±11.89	47.38±10.24*
t value	0.122	2.645	0.154	3.125
P value	0.904	0.010	0.879	0.003

Note: \*indicates compared with before the nursing,  $P < 0.05$ .

the antipruritic onset and skin improvement times in the RG were significantly lower than they were in the CG ( $P < 0.05$ ). However, the DLQI scores in the RG and the CG after 3 months of treatment were lower than they were before the treatment ( $P < 0.05$ ), and the DLQI scores in the RG after the nursing were lower than they were in the CG ( $P < 0.05$ ). This shows that high-quality care is conducive to the improvement of pruritus symptoms and the improvement of patients' quality of life. Pang [24] and other studies also found that high-quality nursing can improve the adverse reactions of liver cancer patients during radiotherapy, and can improve their nursing satisfaction and quality of life. All these findings speak to the effectiveness of high-quality nursing in improving patients' quality of life. Patients with liver diseases often suffer from depression and anxiety due to their prolonged illness. In addition, many patients suffer from poor sleep due to severe systemic pruritus, which further aggravates their dysphoria [25,

26]. Poor rest can also cause an increase in their blood sugar and the occurrence of liver disease, causing a vicious circle. Therefore, the HQN in this study paid attention to pacifying the patients, they patiently and accurately answered questions, they promptly removed bad emotions, they strengthened communication with the patients, and they created a good nurse-patient relationship. Comparing the SASS DS scores of the RG and the CG, it was found that after the intervention, the SAS and SDS scores of the RG and the CG were lower than before the intervention, and the RG was lower than the CG ( $P < 0.05$ ). Wu [27] and others evaluated the effect of high-quality nursing on improving the anxiety and depression of patients with acute stroke and found that high-quality nursing

can significantly improve the anxiety and depression involved in undergoing MRI examinations in patients with acute stroke, and can improve the completion rate of examination. This showed that high-quality care is more conducive to improving patients' psychological states and reducing their anxiety and depression.

To sum up, the effect of HQN on patients with CLD is remarkable, and it can effectively relieve their skin pruritus symptoms, improve their satisfaction with nursing, and improve their quality of life.

#### Disclosure of conflict of interest

None.

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