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Original Article

The effects of high-quality nursing intervention on the quality of life, sleep, and depression of lymphoma patients

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Abstract: Objective: To explore the effects of high-quality nursing intervention on the quality of life, sleep, and depression of lymphoma patients. Methods: 94 lymphoma patients were enrolled and randomized into an experimental group and a control group (n=47 each). The patients in the control group received conventional nursing, while those in the experimental group were given high-quality nursing intervention. Their quality of life, sleep quality, anxiety and depression, knowledge of the disease, incidences of adverse reactions, total effective rates of treatment, and nursing satisfaction were assessed. Results: The quality of life scores in the experimental group were higher compared with the control group (P<0.05). After nursing, the scores of each item for the PSQI and the PSQI scores (the total scores) in the two groups significantly decreased ((P<0.05). After nursing, the SAS and SDS scores of two groups decreased (P<0.05); the two scores in the experimental group were significantly lower than they were in the control group (P<0.05). Compared with those in the control group, the patients in the experimental group had a significantly higher knowledge of the disease (P<0.05), a higher total incidence of adverse reactions, a higher total effective rate of treatment (P<0.05), and a higher nursing satisfaction rate (all P<0.05). Conclusion: For lymphoma patients, high-quality nursing intervention can relieve their negative emotions, reduce their incidences of adverse reactions, and improve their quality of life and sleep quality. It can also increase their nursing satisfaction and knowledge of the disease, improve their therapeutic efficacy, and promote their recovery from the disease.

Keywords: High-quality nursing, lymphoma, quality of life, sleep, depression

Introduction

According to epidemiological studies, as a malignant tumor originating from the lymphohematopoietic system, lymphoma seriously affects human physical and mental health and quality of life, and even endangers patients' lives. Its clinical symptoms are usually painless lymphadenectasis, hepatomegaly, and splenomegaly, which cause multiple organ injuries throughout the whole body. Current data have shown that its incidence and mortality have been increasing year by year. The disease can be treated by surgery, radiotherapy, and chemotherapy, of which chemotherapy has become the main therapeutic method for postoperative patients due to its better efficacy. However, chemotherapy can easily cause adverse reactions and irreversible damage to patients, improving their lives only a little [1-4]. Additionally, the pain caused by the disease increases patients' fear and restlessness, so high-quality nursing is necessary for its treatment and intervention [5].

The early and timely treatment of lymphoma is crucial. High-quality nursing intervention during treatment stabilizes the therapeutic effect and improves hospitals' nursing standards [6]. Studies have demonstrated that "people-oriented" high-quality nursing intervention plays an important role in improving patients' therapeutic efficacy and quality of life and in relieving their negative emotions [7-9]. Some studies have also reported its therapeutic effect on different diseases. High-quality nursing intervention is effective at reducing the cancer-related fatigue of patients with breast cancer after chemotherapy [10]. In addition to reducing the inci-

dence of complications, it greatly helps patients with thyroid cancer maintain a good mood and cooperate with medical staff to complete treatment [11].

However, there is a little published research on the efficacy of high-quality nursing intervention for lymphoma. Therefore, lymphoma patients selected as experimental objects were compared and analyzed in this study, to discuss the specific efficacy and clinical feasibility of high-quality nursing intervention.

Materials and methods

General information

A total of 94 lymphoma patients admitted to our hospital were enrolled and randomized into the experimental and control groups (n=47 each). Patients in the control group received conventional nursing, while those in the experimental group were given high-quality nursing intervention. There were 52 males and 42 females, aged 21-72 years with an average age of 49.38±2.64 years. The inclusive criteria was patients whose lymph nodes have recently expanded indefinitely, and patients with lymph nodes confirmed by pathological sections or other affected tissues or organs that meet the lymphoma criteria [12]. The exclusion criteria were as follows: patients with severe hepatic, cardiac, pulmonary, or renal dysfunction; patients with coagulation disorders; patients with mental disorders; patients who were unwilling to participate in this study. All the patients and their families agreed to participate in this study and each signed an informed consent form. This study has been approved by the Medical Ethics Committee.

Nursing methods

Conventional nursing: (1) Matters regarding lymphoma were collected and sorted. The nursing staff distributed health education information to the patients after their admission, and assisted the medical staff to explain its specific contents, so that the patients could correctly understand their own health and face up to their own conditions. (2) The nursing staff suggested that the patients should have a reasonable and bland diet, with proper portions of vegetables and meat strictly based on the nutrition required for the treatment, so as to assist treatment. (3) The nursing staff regularly organized mutual communication among the patients, during which the patients who were recovering well after nursing transferred information such as nursing satisfaction to the newly admitted patients, so as to increase their confidence in treatment. (4) Discharge instruction. The nursing staff instructed the patients in matters pertaining to medication and the disease after discharge, and prohibited them from discontinuing, increasing, or decreasing the dosage of the drugs. It was clearly stated that if the patients had discomfort, they should immediately inform the doctors. The nursing staff also encouraged the patients to exercise appropriately and engage in social activities, so as to relieve their negative emotions caused by the disease, environment, and other factors.

High-quality nursing intervention: Patients in the experimental group were additionally given high-quality nursing intervention. The specific steps were as follows: (1) The personnel responsible for the high-quality nursing intervention trained the nursing staff in charge of the lymphoma patients in theories and skills in order to strengthen their knowledge of the concept and service consciousness of high-quality nursing intervention, to form a high-quality service attitude and spirit, and to improve their understanding of professional knowledge and skills related to lymphoma, as well as to thoroughly master the significance, specific processes, and methods of high-quality nursing intervention. (2) The nursing staff strengthened the mental health education on the patients during their treatment and communication between them, helped them deal with the unfamiliar living environment in the hospital, and enhanced their trust in the treatment, so that they could receive treatment. At the same time, the nursing staff patiently listened to their demands, faced their unhealthy psychology with the same attitude as them, and met their psychological demands as much as possible. In addition, the nursing staff understood their basic information in detail and improved communication with their families, so as to enable their families to understand the role of family support in disease progression and to enhance the family support. They said their relatives and friends should regularly visit them, so that they could be supported by the society and then positively receive treatment. (3) The wards were kept

clean and ventilated, and the facilities and hospital beds were reasonably laid out, so as to reduce a feeling of being cramped. The floors in the wards were kept dry, clean, and free of foreign matter for a long time. Toilets were equipped with skid resistant carpet, portable toilets, and armrests. The number and height of the steps in wards were adjusted, and the corridors were kept spacious and unobstructed. (4) The patients might experience toxic and side effects from the therapeutic drugs during treatment, so the nursing staff should improve health education in the symptoms and preventive measures of the toxic side effects. Moreover, the nursing staff informed the patients in detail regarding matters needing attention during ambulation, and improved their and their families' precaution awareness.

Outcome measures

(1) The Chinese version of the Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36) was used to assess quality of life in the two groups after nursing, including mental health, physical role, emotional role, social function, vitality, and general health. The higher the score was, the better the quality of life was [13]. (2) The Pittsburgh Sleep Quality Index (PSQI) was used to assess the sleep quality in the two groups before and after nursing [14], including sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, hypnotic medication use, and daytime dysfunction. The higher the score was, the poorer the sleep quality was. (3) The Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS) were used to assess the patients' negative emotions. The specific evaluation criteria are shown in the references [15, 16]. (4) The *Lymphoma Knowledge Questionnaire* was used to calculate the patients' knowledge of the disease [17], with a total score of 100 points. The higher the score was, the higher the knowledge of lymphoma was. (5) Adverse reactions were compared between the two groups. The incidences of nausea and vomiting, anorexia, myelosuppression, and diarrhea and constipation were analyzed [18-20]. (6) The effective rate of treatment was assessed through the degree of disease remission after treatment. A complete remission indicated that the clinical symptoms and signs disappeared, and the peripheral hemogram and bone marrow pictures were normal. Partial remission indicated that one of the symptoms and signs, peripheral hemogram, and bone marrow pictures was not completely relieved. Non-remission indicated that 2 or more of the symptoms and signs, peripheral hemogram, and bone marrow pictures were not relieved or even deteriorated [21]. Total effective rate = (complete + partial remission cases)/all subjects. (7) Self-made questionnaires were used to collect the patients' nursing satisfaction, including diagnostic process, hospitalization environment, and nursing quality. The satisfaction was divided into very satisfied, satisfied, and dissatisfied according to the scores.

Statistical methods

In this study, SPSS 19.0 (International Business Machines Corporation) was used to statistically analyze the experimental data. Count data were analyzed using a chi-squared test. The measurement data were expressed as the mean ± standard deviation, and a paired *t* test was used for the comparisons before and after treatment, and a repeated measures analysis of variance for comparisons among multiple groups. Graphpad Prism 8 was used to plot the figures. When $P<0.05$, the difference was statistically significant.

Results

Comparison of general information

There were statistically significant differences between the experimental and control groups in hospitalization time and symptom disappearance time ($P<0.05$), but not in gender, age, educational level, or the presence or absence of the history of treatment ($P>0.05$) (**Table 1**).

High-quality nursing results in higher quality of life

The quality of life scores (physical role, social function, mental health, emotional role, vitality, and general health) in the experimental group were significantly higher than they were in the control group ($P<0.05$) (**Figure 1**).

Table 1. Comparison of general information

Groups	Experimental group n=47	Control group n=47	t/x^2	P
Gender			0.180	0.671
Male	28 (59.57)	30 (63.83)		
Female	19 (40.43)	17 (36.17)		
Age (Years)	49.14±2.45	49.63±2.36	0.988	0.326
Educational level			0.217	0.897
Junior high school	4 (8.51)	5 (10.64)		
Senior high school	29 (61.70)	27 (67.45)		
University	14 (29.79)	15 (31.91)		
History of treatment			0.054	0.815
Yes	35 (74.47)	34 (72.34)		
No	12 (25.53)	13 (27.66)		
Classification of cancer cells			0.190	0.663
Non-Hodgkin's lymphoma	30 (63.83)	32 (68.09)		
Hodgkin's lymphoma	17 (36.17)	15 (31.91)		
Hospitalization time (Days)	8.43±3.13	12.42±3.24	6.072	<0.001
Symptom disappearance time (Days)	3.43±0.33	5.45±0.72	17.480	<0.001

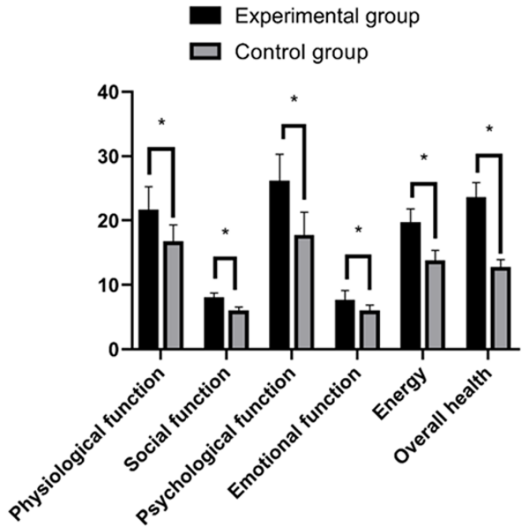

Figure 1. Comparison of quality of life after nursing. The quality of life scores (physical, social function, mental health, emotional, vitality, and general health) in the experimental group were significantly higher than they were in the control group (P<0.05). Note: *indicates P<0.05.

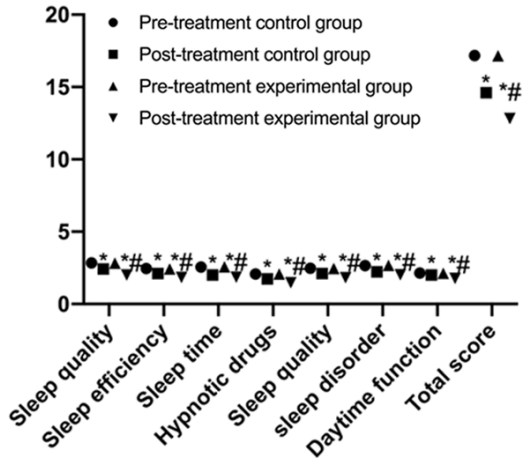

Figure 2. Comparison of PSQI score before and after treatment. Before the nursing, there were no significant differences between the experimental and control groups in the scores of each item for PSQI (sleep quality, habitual sleep efficiency, sleep latency, hypnotic medication use, sleep duration, sleep disturbances, and daytime dysfunction) and the PSQI score (P>0.05). After nursing, these scores in the two groups significantly decreased (P<0.05); these scores in the experimental group were significantly lower than those in the control group (P<0.05). Note: # indicates P<0.05 compared with the control group after nursing, *compared to pre-nursing P<0.05.

High-quality nursing resulted in lower PSQI scores

Before nursing, there were no significant differences between the experimental and control groups in the scores of each item for PSQI and the PSQI scores (the total score) (P>0.05). After nursing, the PSQI scores in the two groups significantly decreased (P<0.05); the decrease in the experimental group was significantly lower than it was in the control group (P<0.05) (**Figure 2**).

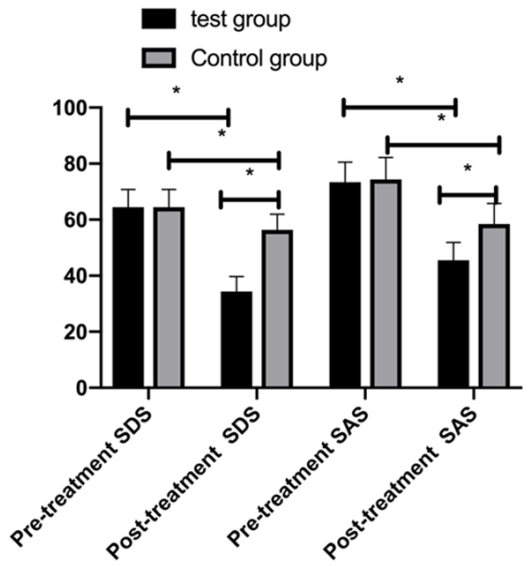

Figure 3. Comparison of SAS and SDS scores before and after nursing. After nursing, the SAS and SDS scores in the experimental and control groups significantly decreased (P<0.05); the two scores in the experimental group were significantly lower than those in the control group (P<0.05). Note: *indicated P<0.05.

High-quality nursing resulted in lower SAS and SDS scores

After nursing, the SAS and SDS scores in both groups were significantly reduced (P<0.05); the reduction in the experimental group was significantly lower than it was in the control group (P<0.05) (**Figure 3**).

High-quality nursing resulted in a better knowledge of the disease

In the experimental group, the number of patients who understood very well, understood relatively well, generally understood, and did not understand the disease was 34, 11, 1, and 1, respectively. In the control group, the number were 25, 8, 6, and 8, respectively. The total disease knowledge in the experimental group (97.87%) was significantly higher than it was in the control group (82.98%) (P<0.05) (**Table 2**).

High-quality nursing resulted in a lower incidence of adverse reactions

The total incidence of adverse reactions in the experimental group (31.91%) was significantly lower than it was in the control group (74.47%) (P<0.05) (**Table 3**).

High-quality nursing resulted in a higher effective rate

The effective rate in the experimental group (95.74%) was significantly higher than it was in the control group (80.85%) (P<0.05) (**Table 4**).

High-quality nursing resulted in higher nursing satisfaction

The nursing satisfaction rate in the experimental group (97.87%) was significantly higher than it was in the control group (85.11%) (P<0.05) (**Table 5**).

Discussion

Lymphoma has a high incidence among hematological diseases. The comprehensive treatment of the disease has been significantly improved in recent years, but many patients with the disease still die from its metastasis and recurrence. Therefore, lymphoma seriously harms patients' quality of life and mental health [22]. Lymphoma patients usually have significant psychological stress reactions because of their great physical, mental, and economic burdens during treatment, which lead to the deterioration of the condition and is not conducive to its prognostic recovery [23, 24]. Adjusting patients' psychology and physiology and centering on patients, high-quality nursing intervention ensures the cleanness and comfort of the nursing environment, reduces the patients' psychological discomfort caused by diseases and sensitivity, and improves the overall quality of the treatment, so as to build a good nurse-patient relationship [9, 25]. There are currently many problems to be urgently solved during the treatment of lymphoma patients, and these problems should be dealt with by appropriate nursing programs. Therefore, in this study, the effects of high-quality nursing intervention on the quality of life, sleep, and depression of lymphoma patients after treatment were analyzed from the perspective of nursing.

This study showed that the experimental group showed a higher quality of life than the control group. A study has shown that high-quality nursing intervention improves and perfects all aspects of the quality of life of tumor patients through meticulous nursing management to their subjective feelings during treatment [26]. Lymphoma is a malignant tumor, which proves

Table 2. Comparison of the patients' knowledge of the disease

Groups	Know very well	Know relatively well	Generally know	Do not know	Knowledge of the disease
Experimental group n=47	34 (72.34)	11 (23.40)	1 (2.13)	1 (2.13)	46 (97.87)
Control group n=47	25 (53.19)	8 (17.02)	6 (12.77)	8 (17.02)	39 (82.98)
X^2	-	-	-	-	6.021
P	-	-	-	-	0.014

Table 3. Comparison of the total incidence of adverse reactions after nursing

Groups	Nausea and vomiting	Anorexia	Myelosuppression	Diarrhea and constipation	Total incidence of adverse reactions
Experimental group n=47	2 (4.26)	4 (8.51)	4 (8.51)	5 (10.64)	15 (31.91)
Control group n=47	7 (14.89)	9 (19.15)	8 (17.02)	11 (23.40)	35 (74.47)
X^2	-	-	-	-	17.091
P	-	-	-	-	<0.001

Table 4. Comparison of the total effective rate

Groups	Complete remission	Partial remission	Non-remission	Total effective rate
Experimental group n=47	36 (76.60)	9 (19.15)	2 (4.26)	45 (95.74)
Control group n=47	28 (59.57)	10 (21.28)	9 (19.15)	38 (80.85)
X^2	-	-	-	5.045
P	-	-	-	0.025

Table 5. Comparison of the nursing satisfaction after nursing

Groups	Very satisfied	Satisfied	Dissatisfied	Nursing satisfaction rate
Experimental group n=47	35 (74.47)	11 (23.40)	1 (2.13)	46 (97.87)
Control group n=47	30 (63.83)	10 (21.28)	7 (14.89)	40 (85.11)
X^2	-	-	-	4.919
P	-	-	-	0.027

from that perspective that high-quality nursing intervention can affect the quality of life of lymphoma patients. After combined treatment, PSQI and the PSQI scores in the experimental group were more significantly lowered. According to a previous study, after high-quality nursing intervention, the patients' negative emotions have been relieved, and their tenseness has been relaxed, which significantly improves their sleep latency and quality [27], and which supports our results. After nursing, the SAS and SDS scores in the experimental group were significantly lower than they were in the control group, which suggests that lymphoma patients suffer from many negative emotions, which are relieved after high-quality nursing intervention. A study has shown that high-quality nursing intervention is better than conventional nursing in correcting patients' mistakes and relieving their negative emotions [28]. In this study, it also relieved the negative emotions of the lymphoma patients. Compared with those in the control group, patients in the experimental group had a significantly higher knowledge of the disease, a higher nursing satisfaction rate and effective rate of treatment, but a significantly lower total incidence of adverse reactions. These findings indicate that high-quality nursing intervention has a significant therapeutic effect on lymphoma, increases patients' knowledge of the disease, and greatly improves the therapeutic effect and the patients' cooperation. According to one study, both psychological nursing and health education are very important to high-quality nursing intervention. The combination of the two helps patients

understand the disease, establishes a psychological basis for their coordination in treatment, and corrects their wrong thoughts and behaviors, as well as relieves their negative emotions [29].

In summary, high-quality nursing intervention is conducive to improving the quality of life and sleep states and mentality of lymphoma patients during treatment. Clinically, it is not only possible to treat patients from surgery and medicine, but also to strengthen the positive feelings of patients towards their own diseases through quality nursing, which eventually help patients recover. However, some limitations exist. Firstly, the sample size was small. Although large-scale research involves high costs, it makes the research results more accurate. Secondly, the efficacy for lymphoma treatment was not compared between high-quality nursing intervention and other nursing methods. Therefore, whether high-quality nursing intervention is the most effective way to treat lymphoma remains to be explored. We hope that more scholars will pay attention to lymphoma nursing in the later stage.

Disclosure of conflict of interest

None.

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