

Impact of Quality Care Interventions on Complications in Patients with Central Venous Line Hematology Oncology



Xiaojuan Wang

Department of Hematology, The First Affiliated Hospital, School of Medicine, Xi'an Jiaotong University, Xi'an, Shaanxi, China.

Abstract

Objective: To explore the preventive effect of high-quality nursing intervention on complications during the treatment of hematological tumors with central venous catheterization. **Methods:** A single-blind group experiment was performed on 240 patients with central venous catheter hematological tumors who were treated in our hospital from January 2019 to December 2021. Among them, 120 patients in the control group were included in the treatment of central venous catheterization for hematological tumors. Routine nursing intervention was given, and 120 patients included in the observation group were given high-quality nursing intervention at the same time. The proportions of complications of local infection, phlebitis, catheter exudation, and puncture redness were compared between the two groups, and the one-time puncture success rate was calculated. GQOLI-74 scale evaluates the patient's psychological, physical, material and social functions and quality scores (the evaluation time is four weeks after nursing); the patient's satisfaction under the nursing mode is counted. **Results:** The proportion of patients in the observation group complicated with local infection, phlebitis, catheter exudation, and puncture redness was low; the observation group was evaluated by GQOLI-74 scale and the physiological recovery effect was good; the patients in the observation group had high satisfaction with nursing, ($P < 0.05$). **Conclusion:** High-quality care of central venous catheter during the treatment of hematological tumors can prevent and reduce complications, help to stabilize the physiological indicators of patients, promote the performance of catheterization, safe catheterization, and assist the effective development of hematological tumors.

Keywords

Quality Nursing, Central Venous Catheterization, Hematological Neoplasms, Complications

<https://oajnr.damray.com/>

OPEN ACCESS

DOI:

Received: June 28, 2022

Accepted: July 26, 2022

Published: August 30, 2022

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1. Introduction

Hematologic oncology opens a channel of fluid delivery for patients in the form of central venous placement, which can provide drug interventions for oncologic chemotherapy and reduce repeated puncture pain. The care should pay

particular attention to the prevention and control of complications, reduce drug irritation, puncture injury, and tissue defects, so that hematologic oncology patients can recover their physiological capacity in a sequential manner through safe drug intervention. The quality care model is based on the mechanism and principles of central venous line placement, and the care is carried out with the aim of reducing patient pain and drug risks, and the management of complications in hematologic oncology care is relatively active and comprehensive [1].

2. Information and methods

2.1. General data

A single-blind group experiment was conducted to review 240 patients with central venous line hematology tumors admitted to our hospital between January 2019 and December 2021, in which 120 patients included in the control group were jointly given conventional nursing interventions during central venous line hematology tumor treatment, 65 cases and 55 cases of both sexes in this group, aged 21-76 years old; 120 patients included in the 120 patients in the observation group were given quality nursing interventions at the same time, and there were 63 and 57 patients of both sexes in this group, aged 20-79 years. The patients were leukemia, lymphoma, myeloma and other diseases, respectively, and there were no statistical differences in the time of onset, disease typing and age of patients, ($P>0.05$).

Exclusion criteria: incomplete and missing information about the patients from the time of consultation to the period of catheterization; combined mental impairment; combined cardiac and cerebral system diseases; combined severe post-traumatic injury; history of allergy; bleeding; thrombosis; severe skin lesions at the puncture site.

Inclusion criteria: duration of indwelling catheter was between one month and two months; number of punctures was between one and three; skin at the puncture site was intact and free of rash.

2.2. Methods

Routine care for central venous cannulation in hematologic oncology.

Local cleaning and disinfection of the punctured skin, basic education to explain the reason for puncture, change the patch at regular intervals, seal the tube and take over the tube according to the conventional standards, adjust the tube in time if the patient feels discomfort or the drainage tube is detached during the placement period, introduce the significance of central venous cannulation during hematological tumor to the patient, encourage the patient to cooperate with the management of the cannulation, explain the safety matters related to the cannulation, and encourage the patient to take care of the patient in diet and other daily behaviors. In daily behavior, patients should avoid touching the line by reasonable activities [2].

Quality care for central venous line placement in hematology-oncology.

To assist the physician to carry out the assessment of the patient's systemic symptoms, analyze and integrate the patient's data with the report about the patient's hematological tumor, discuss the potential characteristic risks during the patient's central venous cannulation, mainly observe the skin and vascular condition around the puncture, investigate the patient's mental condition and medical history, and question the patient's family to understand whether the patient is resistant to cannulation and the situation related to cancer triggering. After routine medical education, if the patient is observed to have poor mental status and poor skin condition, appropriate care will be given to correct the condition before placement. If patients are unstable before and after placement, they should be asked if they are confused and given one-on-one explanations. If necessary, patients of the same type can be invited to communicate with each other and family members can be consciously asked to give encouragement, temporarily diverting patients' attention and relieving their emotions by reading, etc. to provide a safe environment for placement [3].

Complication prevention: (1) Phlebitis prevention: investigation of the formation factors of phlebitis during catheter placement in clinical hematologic oncology patients is related to thick catheter diameter, hard material, and excessive activity of the punctured limb, so relevant contraindications should be excluded, and under aseptic operation, appropriate models should be selected for patients, and soft silicone catheters should be used for operation, and puncture should be done gently and with attention to the angle, and as much as possible, one-time puncture should be completed. The patient should be given a hydrocolloid dressing and 50% magnesium sulfate hot compress for 20 minutes along the vascular location, once or three times a day, and the affected limb should be braked, and the patient should be prohibited from moving freely, and instructions should be given. After the dressing is changed in a standardized manner, talk with the patient during the checkup, while observing the dressing situation, and ask the family to cooperate in checking whether the dressing is loose and contaminated, so that the nurse can be called to change it in time. (2) Prevention of catheter dislodgement and blockage: review the patient's condition, dislodgement or blockage is related to excessive activity of the tube and dressing not being replaced in time. order, verification of drugs, and regular evaluation after

puncture [4].

2.3. Observation indexes

Comparing the percentage of complications of local infection, phlebitis, catheter ooze, and puncture redness between the two groups, and counting the one-time puncture success rate.

Comparing the scores of patients' mental, somatic, physical, and social functions and quality under the evaluation of patients by the GQOLI-74 scale (the assessment time is four weeks after care).

Statistical patient satisfaction under the care model [5].

2.4. Statistical processing

Statistical products and services solution SPSS 21.0 was taken for data processing, mean \pm standard deviation (4-s) was expressed, paired data t-measure, count χ^2 test, statistical difference P-determination ($P < 0.05$ or $P > 0.05$).

3. Results

(1) In the observation group, there was 1 case of local infection and 1 case of phlebitis, and the ratio of total complications was 2, 1.67%; in the control group, there were 2 cases of local infection, 3 cases of phlebitis, 1 case of catheter leakage and 2 cases of puncture redness, and the ratio of total complications was 8, 6.67%, and quality care helped to prevent and control and reduce complications. For details, see Table 1.

(2) The scores of all four functions and levels of the GQOLI-74 scale were high in the observation group with scores above 80, and low in the control group with scores above 70. For details, see Table 2.

(3) Comparison of satisfaction with nursing care between the two groups: the satisfaction rate of patients in the observation group was 114/120, 95%, and that of patients in the control group was 109/120, 90.83%. The one-time puncture success rate of the observation group was 103/120, 85.83%, and that of the control group was 97/120, 80.83% ($P < 0.05$).

Table 1. Comparison of complications in patients with central venous placement for hematologic oncology

Groups	n	Localized infections	Phlebitis	Catheter leakage	Puncture redness and swelling	Total Chances
Observation groups	120	1	1	0	0	2/1.67%
Control groups	120	2	3	1	2	8/6.67%
χ^2	-	2.516	2.845	2.163	2.956	2.845
P	-	<0.05	<0.05	<0.05	<0.05	<0.05

Table 2. Comparison of GQOLI-74 scale scores in patients with central venous cannulation for hematologic oncology

Groups	n	Mentality	Physical	Material	Society
Observation groups	120	85.42 \pm 4.62	81.26 \pm 6.75	84.75 \pm 4.59	86.59 \pm 4.29
Control groups	120	77.13 \pm 2.59	76.45 \pm 3.29	73.26 \pm 5.19	71.23 \pm 5.43
χ^2	-	2.569	2.145	2.384	2.165
P	-	<0.05	<0.05	<0.05	<0.05

4. Discussion

The basic treatment of hematological tumors in the form of chemotherapy, during which to avoid the pain caused by repeated punctures and to reduce the irritation of drug delivery, usually takes the form of central venous placement for fluid delivery, but during which phlebitis, catheter blockage and other problems occur, in order not to affect the effect of chemotherapy and to provide a safe route of drug delivery for prognosis, it is necessary to be trained by central venous placement to improve the success rate of one-time puncture, which makes central venous placement less irritating to

blood vessels. The central venous line is less irritating.

Quality care pays high attention to the potential risks of hematologic oncology patients during placement, and the content of care is relatively detailed, providing patients with fine services and clear nursing accountability. In clinical placement, it is difficult to obtain cooperation due to patients' lack of medical knowledge, mental stress and economic pressure, etc., and patients' activities lead to detubation and fluid leakage. Quality care combines patients' physical and mental conditions, and after comprehensive situation assessment, the information of assessment is shared with patients to gain patients' trust, and then the corresponding placement plan is made for patients, which leads to the obvious value of placement advantages and safety.

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