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The Effect of Evidence-based Management on Occupational Protection of Nurses Who Perform Chemotherapy

Liping Yang*

Shaanxi Provincial People's Hospital, Xi'an 710068, Shaanxi Province, China

***Corresponding author:** Liping Yang, lipingyang@sina.com

Abstract: ***Objective*:** The study was to explore the effect of evidence-based management in occupational protection for nurses who perform chemotherapy. ***Methods***: 40 chemotherapy nurses were selected, 20 of them were included in the experimental group for evidence-based management, and the other 20 were included in the control group for routine management. ***Results*:** Compared with the control group, there were significantly fewer adverse nursing events in the experimental group, and P<0.05. ***Conclusion*:** The effect of evidence-based management in occupational protection of nurses who perform chemotherapy is significant.

Keywords: Evidence-based management; Nurses who perform chemotherapy; The effect of occupational protection

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1. Introduction

As a treatment method, chemotherapy and radiotherapy are commonly used in clinical practice. Application of it in the treatment of patients can prolong the life of patients to a certain extent and significantly improve the quality of life of patients. Most of the chemotherapeutic drugs currently in use are cytotoxic drugs, which are prone to adverse reactions and are harmful to patients. For nurses who perform chemotherapy, it can also threaten their health. This study selected 40 nurses who perform chemotherapy to explore the effect of evidence-based management in occupational protection.

2. Materials and methods

2.1. Materials

Around 40 nurses who perform chemotherapy in our hospital from January to December 2020were selected and signed the informed consent to participate in the study. The participants were randomly grouped with 20 women in the experimental group, and their ages were from 18 to 45, with an average age of 26.5 years old; the control group included 20 women, all of whom were 19 to 44 years old, with an average year of 26.0 years old. The above data of the two groups were statistically analyzed, and P >0.05.

2.2. Method

The control group implemented regular management and completed the work in accordance with the relevant regulations and nursing procedures of our hospital. The experimental group implemented evidence-based management: nurses will do weekly summaries based on previous nursing conditions [1], formulate high-quality nursing measures, report them to the nursing management department, and supervise the implementation of evidence-based nursing.

(1) When preparing medicines, nurses should take precautions. When preparing chemotherapy drugs, nurses will wear masks, gowns, hats, and double-layer gloves, use goggles and face masks, choose thick needles as much as possible, and pump the drugs up to 2/3 of the container.

(2) Nurses should take precautions during drug storage and drug collection. Perfect protective measures will be formulated. For departments that use chemotherapy drugs, the drug use system should be clarified, and the person in charge should strictly check and manage every aspect of drug use.

(3) Maintenance of protective equipment. Occupational protection is based on protective equipment. To ensure its safety and effectiveness, a centralized protective equipment management system will be established, and nurses in the chemotherapy department will be trained to ensure environmental protection, occupational safety and reasonable allocation of human resources, regularly maintain protective equipment, and verify the effectiveness of the equipment every six months.

(4) Standardize on-the-job training. Implement on-the-job training for all the nurses in chemotherapy department, build correct attitudes and beliefs, and use situational teaching, observation lectures, and special lectures [2] to teach nurses the knowledge of protection.

2.3. Observation indicators

The occurrence of adverse nursing events between the two groups of nurses were observed and compared.

2.4. Statistical methods

t test, was used for the measurement data, and the count data was used to X^2 test. The statistical analysis of data was processed by SPSS 25.0. The data was expressed by ($\bar{x} \pm s$) and in percentage. P<0.05 was considered as statistically significant.

3. Results

The occurrence of adverse nursing events in the experimental group was significantly lower than that in the control group, and P<0.05.

Table 1. Comparison of the occurrence of adverse nursing events between the two groups

Groups	Experimental group (n=20)	Control group (n=20)	X^2	P
Failure to check equipment effectiveness before surgery	1	2		
Imperfect equipment protection	0	1		
Incorrect inventory	1	2		
Incomplete mechanical preparation	0	1		
Incorrect medication	0	1		
Irregular use of the instrument	0	1		
Total	2 (10.00)	8 (40.00)	4.8000	＜0.05

4. Discussion

Clinical nursing is constantly improving. In the treatment environment, nurses pay more and more attention to their own occupational hazards, and constantly enhance their legal awareness and self-awareness. For nurses who perform chemotherapy, occupational protection is increasingly concerned. The incidence of malignant tumors in our country is relatively high, patients are prone to death, and their main treatment is chemotherapy. In the past work, nurses are prone to improper operation in the process of receiving, storing and configuring chemotherapy drugs, causing the nurses to directly contact the chemotherapy drugs, or nurses are exposed to aerosols and gases that are invisible to the naked eye [3], and endanger the health of nurses through nurses' skin, respiratory tract, and digestive tract. For nurses who perform chemotherapy work, the working environment is special and they are vulnerable to various threats. Therefore, it is very necessary to do a good job in the occupational protection of them.

Chemotherapy drugs are widely used in the process of tumor treatment. When keeping, receiving, and distributing drugs, as well as treating patients with chemotherapy and chemotherapy wastes, nurses may be exposed to invisible aerosols or spray formed by chemotherapy drugs due to improper protection or improper operation [4], which contains toxic substances. It can be absorbed through the digestive tract, respiratory tract, skin, etc., which can cause psychological and physical harm to the human body. The toxicity of chemotherapy can lead to adverse reactions in patients. For nurses who perform chemotherapy, it can also endanger their health, and there is a certain potential harm. The degree of harm is related to individual sensitivity and exposure dose. For example, alkylating agents can cause irregular menstruation, ovarian dysfunction, or temporary or even permanent amenorrhea. For nurses exposed to anticancer drugs, lymphocyte chromosome mutations may occur and DNA breaks may increase. Compared with the general population, spontaneous abortion is prone to occur, which can reduce platelets and white blood cells [5], and produce toxic reactions such as hair loss and menstrual disorders. After the implementation of evidence-based management, the incidence of adverse reactions to chemotherapy has been significantly reduced. Clinical practice has found that with the prolonged occupational exposure to anti-tumor drugs, the incidence of toxic and side effects will be significantly increased. In addition, exposure to anti-tumor drugs can cause psychological problems such as depression, anxiety, and somatization among nurses [6].

Clinical practice has proved that the evidence-based management adopted during the occupational protection period of nurses is highly effective and feasible, and can improve the effectiveness of occupational protection of nurses. The analysis of the reasons includes the following points: First, in view of the various nursing deficiencies of nurses, the use of services, communication, and inspiring learning methods to train nurses' vocational skills can effectively improve the lack of knowledge, communication barriers, and lack of service awareness caused by nurses due to age differences. After the implementation of evidence-based management, the effect of occupational protection has been significantly improved [7]. Second, during the nursing period, due to failure to check the effectiveness of the equipment before the operation, imperfect equipment protection, incorrect inventory, incomplete mechanical preparation, incorrect medication, improper use of equipment, accidents on the way to collect the medicine, etc., it will endanger the life of the nurse. Therefore, the above situation should be avoided in actual work. After the implementation of evidence-based management, the above problems can be well resolved. When opening the powder ampoule, sterile gauze was used to wrap the neck of the bottle, and inject the solvent into the bottom of the bottle along the bottle wall to reduce the dissolving speed. After the powder is soaked, stir it. The infusion set and the syringe connector should be tightened to avoid falling off. When using the suction bottle to prepare the aqueous solution, the double needle should be inserted to remove the pressure in the bottle to avoid the needle plug from falling out and causing pollution [8]. In the process of dealing with the contamination of anticancer drugs, if the liquid is accidentally spilled on the ground or tabletop, absorbent paper or gauze should be used to absorb it. For nursing managers, work procedures, related management

systems, and operating specifications should be improved as much as possible, and from an evidence-based perspective, the occupational protection program should be safe and professional [9]. For nurses, sufficient knowledge and operational skills related to chemotherapy occupational protection should be mastered, and a high degree of uniform knowledge, belief and practice should be gained after training, so as to significantly improve the effect of occupational protection.

The study concluded that there were significantly fewer adverse nursing events in the experimental group.

Based on the above conclusions, the effect of evidence-based management during the occupational protection period of nurses who perform chemotherapy is satisfactory, which can significantly reduce the occurrence of adverse nursing events, and is worthy of clinical recommendation.

Disclosure statement

The author declares no conflict of interest.

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