Original Research Article

Level of Education Provided by Nurses to the Parents of Children with Chemotherapy-Induced Mucositis

Mohammad Arshadi Bostanabad[1], *Tahereh Alvandnezhad[2], Amirataollah Hiradfar[3], Asghar Mohammadpoorasl[4], Bagher Khalvati[5]

[1]Department of Nursing, School of Nursing and Midwifery, Tabriz University of Medical Sciences, Tabriz, Iran [2] Tabriz University of Medical Sciences, Tabriz, Iran [3]Department of Pediatrics, Tabriz University of Medical Sciences, Tabriz, Iran [4] Health Services and Management Research Center, Tabriz University of Medical Sciences, Tabriz, Iran [5] IT Department, School of Nursing and Midwifery, Tabriz University of Medical Sciences, Tabriz, Iran

ABSTRACT

Introduction: Mucositis is a side effect of chemotherapy, which affects patients' quality of life. Nurses are the main care providers for cancer patients. Choosing a suitable care strategy is a challenge faced by oncology nurses. Educating patients about management of cancer therapy complications results in optimal use of healthcare services and improves quality of life of patients. The aim of this study was to evaluate level of health education provided by nurses to the parents of children with chemotherapy-induced mucositis. **Materials and methods:** This descriptive study was conducted in 2016 on 60 children (mean age 86.7 ± 39.16 months) with chemotherapy-induced mucositis at the Children's Hospital of Tabriz, Iran. Demographic information and health education offered in conjunction with the mucositis clinical records were obtained through interviews with the parents. The data were analyzed in SPSS 12, using chi-square test and t-test. **Results:** Only 3.3% of the subjects received appropriate training in relation to mucositis, whereas 56.6% received no training and 40% received partial training. **Conclusions:** Our results suggest that the level of training provided for children with chemotherapy-induced mucositis is not satisfactory. Therefore, nursing authorities and planners should prepare the nursing personnel to provide care and special support to these patients.

KEYWORDS: Education, Nursing, Mucositis, Cancer

***Correspondence:** Tahereh Alvandnezhad, Address: Tabriz University of Medical Sciences, Tabriz, Iran, Telephone: +98-4114796770, Email: nurs.alvand@gmail.com

INTRODUCTION

Nowadays, cancer is considered as one of the most important health challenges [1]. Although the number of childhood cancers are limited, these malignancies are the most common causes of death in children [2]. The experience of cancer patients overlaps with nursing care since the difficulties and complications caused by the disease and therapy, discriminate these patients who require specialized care [3].

Systemic therapies for cancer such as chemotherapy are often accompanied with some side effects, including oral mucositis. This complication is defined as the inflammation and ulceration of the oral mucosa and occurs in more than 75% of adult patients under chemotherapy, while some studies have reported the incidence of oral mucositis to be 52-80% in children [1, 4, 5]. Chemotherapy is performed either as a primary or adjuvant therapy for cancer, aiming to eradicate the rapidly growing tumor cells. However, chemotherapy is often toxic to other cells that divide normally, including the oral mucosa. Management of oral health during cancer therapy includes identifying at-risk patients, patient education, appropriate pretreatment interventions and timely management of complications. Appropriate preventive and therapeutic measures will improve treatment outcomes as well as the patients' quality of life and help minimize the risk of oral and other complications of systemic therapy [6]. Mucositis also refers to functional lesions of the oral cavity and associated problems, and may affect survival and treatment outcomes in cancer patients [1,5,7]. Since mucositis may cause disability in children undergoing chemotherapy, they should be properly

managed to prevent further intensification and complication [8].

Nurses play a critical role in management and control of the symptoms, resulting in decreased costs and improved quality of life of patients [8]. Patient education is an essential aspect of patient care, which is based on the needs of the patient, and assists the healthcare team in collaborative and informed decision making [9]. As a main part of healthcare services, the need for patient education is raised during the hospitalization period [10]. Patient education is based on the use of knowledge and skills that help patients better cope with the illness and achieve maximum health and ability [9]. Among other benefits of patient education are health promotion, reduced cost of care, increased patient satisfaction, improved quality of life, ensuring continuity of care, reduced patient anxiety, reduced incidence of disease complications and shortened hospitalization [9]. Nurses and nursing care are important parts of management and care of cancer patients undergoing chemotherapy [3]. In addition, nurses have more frequent access to patients and their families as well as the means and knowledge to provide patient education [10]. Therefore, this study was carried out to investigate the level of education provided by nurses about oral care and management of chemotherapy-induced mucositis in children with cancer.

MATERIALS AND METHODS

This descriptive-analytical research was carried out on 60 children with cancer suffering from chemotherapy-induced mucositis in children's hospital of Tabriz (Iran) from August to November 2016. After obtaining consent, eligible children were enrolled in the study using simple and available sampling method. Inclusion criteria were hospitalization in hematology ward or blood clinic, consciousness, history of chemotherapy, oral mucositis and age range of 3-14 years. Cases not willing to continue participation in the study and those connected to ventilator and/or suffering from recurrent oral infectious were excluded from the study. The study received approval from the ethics committee of the Tabriz University of Medical Sciences (approval code: IR.TBZMED.REC.1395.282).

Data collection

Data were collected using a questionnaire. Accordingly, demographic information and medical history were separately recorded for each patient through interviews with the subject's healthcare provider. The World Health Organization oral mucositis scale was used to study the severity of mucositis. The scale classifies the severity of lesions into 4 grades (0: no symptom, 1: erythema and partial sensitivity without ulcer, 2: oral ulcer, erythema and ability to eat solid food, 3: oral ulcer, erythema and inability to eat solid food, 4: bleeding and inflammation of the mucus and inability to drink fluids and take medications). Intraoral examination was also carried out for each subject to determine the severity of mucositis. The content validity of the questionnaires was approved by experts in hematology and oncology, and accuracy of the English-to-Persian translation of the questionnaires was confirmed.

We examined level of training on mucositis including mucositis prevention, mucositis reduction, use of mouthwash cocktail (containing MgS syrup, diphenhydramine syrup and lidocaine gel), oral healthcare and nursing education in specific mucositis. Collected data were analyzed in SPSS software (version 12) using chi-square test and t-test. A p-value of less than 0.05 was considered as statistically significant.

RESULTS

In this study, 20 children (33.3%) from the oncology clinic and 40 children (66.7%) from the oncology ward were selected. There was no significant difference in the mean age of children admitted to the ward (82.43 ± 37.65 months) and those admitted to the clinic (95.25 ± 41.61 months). The mean severity of mucositis at the time of admission was significantly higher in patients in the ward (2.03 ± 0.620) compared to patients in the clinic (1.45 ± 0.470) ($P<0.001$). There

was no significant difference in terms of other demographic characteristics between the two groups (Table 1).

Table 1. Demographic characteristics of children with chemotherapy-induced mucositis

		Ward (n=40)		Clinic (n=20)		Statistical test results		
		Number	Percent	Number	Percent	X^2	Df	P-value
Mother's education	Illiterate/elementary	10	25.0	7	36.8	7.011	2	0.135
	Intermediate/ high school diploma	21	52.5	12	63.2			
	University degree	9	22.5	0	0.0			
Father's employment status	Employee	7	17.5	2	10.5	0.653	3	0.884
	Self-employed	16	40.0	8	42.1			
	Worker	10	25.0	6	31.6			
	Other	7	17.5	3	15.8			
Birth order	First	20	50.0	8	40.0	3.740	2	0.587
	Second	12	30.0	10	50.0			
	Third and higher	8	20.0	2	10.0			
Genderr	Female	13	65.0	7	35.0	0.038	1	0.846
	Male	27	67.5	13	32.5			

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Evaluation of the nurse's training on mucositis for children revealed that only 3.3% of the subjects received appropriate training in relation to mucositis, whereas 56.6% received no training and 40% received Partial training. The results also showed that patients in the ward received more education on mucositis mitigation techniques than those admitted to the clinic (Table 2).

Table 2. Comparison of nurses' training on mucositis for children admitted to the ward and the clinic

Type of training		Total (n=60)	Ward (n=40)	Clinic (n=20)	Statistical test between ward and clinic		
		Number (%)	Number (%)	Number (%)	X^2	Df	P-value
Training on how to perform routine mouthwash	Yes	19 (31.7)	12 (30)	7 (35)	1.004	2	0.605
	Somewhat	33 (55.0)	20 (50)	13 (65)			
	No	8 (13.3)	8 (20)	0			
Training on reducing mucositis	Yes	0 (0)	0 (0)	0 (0)	1.014	1	0.314
	Somewhat	20 (33.9)	14 (35.9)	6 (30)			
	No	39 (66.1)	25 (64.1)	14 (70)			
	Yes	0 (0)	0 (0)	0 (0)			

Training on mucositis prevention methods	Somewhat	24 (40.0)	18 (45)	6 (30)	4.444	1	0.035
	No	36 (60.0)	22 (55)	14 (70)			
Training on oral health	Yes	4 (6.7)	3 (7.5)	1 (5)	0.072	2	0.965
	Somewhat	31 (51.7)	18 (45)	13 (65)			
	No	25 (41.7)	19 (47.5)	6 (30)			
Total training score	Yes (Appropriate)	2 (3.3)	1 (2.5)	1 (2.5)	0.284	2	0.867
	Somewhat (Partial)	24 (40)	16 (40)	8 (40)			
	No	34 (56.66)	23 (57.5)	11 (55)			

DISCUSSION

Oral mucositis is a frequent and potentially severe complication of chemotherapy and radiation therapy. Mucositis is painful and can result in impaired nutrition, infection and treatment delay. Pediatric oncology nurses should provide the most appropriate oral care regimen for each patient [11]. Definitive treatment of cancer focuses not only on long-term survival, but also on reduction of the treatment side effects. Nonetheless, many children still suffer from long-term complications of cancer. The side effects caused by cancer therapy considerably reduce the quality of life of patients and increase the risk of mortality among survivors [12]. Nurses have a special role in promotion of cancer care. Nonetheless, no instruction has been defined for determining nurses' role based on clinical standards [3]. Nurses are often the health care providers which patients and their families rely on when making treatment decisions[13]. Wells et al. (2008) demonstrated that nurses can help manage mucositis [14]. A study carried out by Mason et al. showed that nurses play a role in management and control of symptoms, leading to decreased treatment cost [8].

Oncology nurses have an important role in management of cancer patients and can provide health care to minimize disease- and treatment-related complications, such as mTOR inhibitor-associated stomatitis [15]. Nurses play a key role in identification and management of patients at risk of chemotherapy-induced mucositis [16]. Providing proper oral care is another challenge faced by oncology nurses [11]. In 2017, Yüce and Yurtsever examined the effect of education on mucositis and the quality of life of cancer patients undergoing chemotherapy. They showed that quality of life patients who had received training was higher than that of the control group [17]. Yavuz and Yılmaz studied the effect of dental care education on the incidence of oral mucositis in children with cancer and reported a significant difference between the incidence rate of mucositis before and after the education. Mean pain intensity was significantly different before and after the education. Moreover, both the degree of mucositis and pain intensity decreased when children were given a planned mouth care education before chemotherapy [18].

Oral care is of utmost importance in patients undergoing high-dose chemotherapy due to the high incidence of mucositis [19].

Nurses can educate patients or their families about the complications associated with therapies, resulting in improved quality of life of patients [20]. In our study, the

majority of patients had not received proper training for management of oral mucositis. Therefore, nursing authorities and planners should prepare the nursing personnel to provide care and special support to children with cancer. On the other hand, various barriers of providing such services for patients from the nurses' viewpoint need to be further investigated.

CONCLUSION

Given the close relationship between nurses and patients, nurses play an important role in oral health education and promotion for patients. Our results suggest that the level of training provided for children with chemotherapy-induced mucositis is not satisfactory. Therefore, nursing authorities and planners should prepare the nursing personnel to provide care and special support to these patients.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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