Level of knowledge and compliance of care for cancer patients with febrile neutropenia of nurses in the emergency service at the National Institute of Neoplastic Diseases, 2020

[Nivel de conocimiento y cumplimiento de los cuidados a pacientes oncológicos con neutropenia febril de las enfermeras del servicio de emergencia del Instituto Nacional de Enfermedades Neoplásicas, 2020]

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Resumen

La neutropenia febril en pacientes con cáncer es una emergencia oncológica, debido a la inmunosupresión que deja al paciente vulnerable a contraer infecciones por bacterias, hongos y virus que ponen en riesgo su vida, por lo que además del manejo médico oportuno es necesario un adecuado cuidado de enfermería para prevenir o evitar complicaciones. Objetivo: Determinar la relación entre el nivel de conocimiento y el cumplimiento de los cuidados en pacientes oncológicos con neutropenia febril en las enfermeras del servicio de emergencia del Instituto Nacional de Enfermedades Neoplásicas. Metodología: Estudio de enfoque cuantitativo, método descriptivo, correlacional, transversal. Población: 58 licenciados en enfermería que trabajan en el servicio de emergencia, se aplicaron 2 instrumentos elaborados por los investigadores, para la variable conocimientos se utilizó un cuestionario como instrumento, para la variable cumplimiento de los cuidados del paciente con neutropenia febril se utilizó una lista de chequeo. Resultados: El 86,2% de las enfermeras presentaron un nivel de conocimiento alto y el 13,8% un nivel de conocimiento medio, respecto al cumplimiento de los cuidados al paciente, se encontró que el 77,6% de las enfermeras realizan cuidados regulares y el 22,4% realizan cuidados buenos. En cuanto a la asociación de las variables, se obtuvo un p= .796 entre el nivel de conocimientos y el cumplimiento de los cuidados y un coeficiente Rho de Spearman (-.035), que determina que no hay relación entre las variables. Conclusiones: En el presente estudio se evidenció que no existe relación entre el nivel de conocimiento y el cumplimiento de los cuidados en pacientes oncológicos con neutropenia febril en las enfermeras del Servicio de Emergencia del Instituto Nacional de Enfermedades Neoplásicas.

Palabras clave: Neutropenia febril, Conocimiento y Cumplimiento de los cuidados de enfermería.

Abstract

Febrile neutropenia in cancer patients is an oncologic emergency, due to immunosuppression that leaves the patient vulnerable to bacterial, fungal and viral infections that put his life at risk. Therefore, in addition to timely medical management, adequate nursing care is necessary to prevent or avoid complications. Objective: To determine the relationship between the level of knowledge and compliance with care in oncologic patients with febrile neutropenia in nurses of the emergency department at the National Institute of Neoplastic Diseases. Methodology:

Quantitative approach study, descriptive, correlational, cross-sectional, descriptive method. Population: 58 nursing graduates working in the emergency service, 2 instruments developed by the researchers were applied, for the knowledge variable a questionnaire was used as an instrument, for the variable compliance with the care of the patient with febrile neutropenia a checklist was used. Results: 86.2% of the nurses presented a high level of knowledge and 13.8% a medium level of knowledge. Regarding patient care compliance, it was found that 77.6% of the nurses performed regular care and 22.4% performed good care. Regarding the association of the variables, a p= .796 was obtained between the level of knowledge and care compliance and a Spearman's Rho coefficient (-.035), which determines that there is no relationship between the variables. Conclusions: In the present study it was evidenced that there is no relationship between the level of knowledge and care compliance in oncologic patients with febrile neutropenia in the nurses of the Emergency Department at the National Institute of Neoplastic Diseases.

Keywords: Febrile neutropenia, Knowledge and compliance with nursing care.

1. Introduction
Cancer has become one of the main health problems worldwide, generating high social and economic costs. It is also one of the most feared pathologies in the population due to its association with death, despite the fact that most of them are curable if diagnosed in early stages (Vallejos, 2020). According to data from globocan, in 2020 there were 19.3 million new cases of cancer worldwide, almost 10 million deaths, and 50.6 million people living with cancer (Sung et al., 2020). In the Americas in 2020, cancer caused 1.4 million deaths (PAHO/WHO, 2020). In Peru as in the rest of the world, cancer has become a concern, many people have had a close relative with this disease, according to globacan data for 2020, 69,849 new cases of cancer and 34,976 deaths were reported (MINSA). According to INEN data, in the period 2013-2015 only in Metropolitan Lima, 75,418 new cases of cancer were reported (70,162 invasive and 5,256 in situ). The new cases of invasive cancer were 31,440 (44.8%) in men and 38,722 (55.2%) in women (INEN 2021).

Currently, the treatment to combat cancer in cancer patients is mainly chemotherapy, which affects not only cancer cells but also healthy cells, one of the important systems that is affected is the immune system, producing a certain degree of neutropenia and is responsible for making it susceptible to infections by bacteria, fungi and viruses that can lead to death (Vahedian et al., 2019). That is why febrile neutropenia is considered an oncological emergency and must be treated promptly, not only by starting treatment with antibiotic therapy as soon as possible, but also by strictly complying with asepsis and antisepsis measures (Rivera et al., 2018), especially due to the current pandemic caused by SARS-COV 2, which is highly contagious either by coughing, sneezing and even talking or by contact with contaminated surfaces, characteristics that have allowed its rapid spread; therefore, it is important to have health personnel who know how to manage neutropenic patients. According to INEN statistics during 2020, 16,054 cancer patients were treated in the emergency service, of which 276 presented some degree of neutropenia during the first semester and their stay in the service was between 5 to 15 days, depending on the case.

Febrile neutropenia is defined as a peripheral blood absolute neutrophil count (ANC) of less than 1,000/mm3 plus a recorded peak fever of 38.3°C or a temperature of 38.0°C sustained for 1 hour (INC, 2013). According to international statistics, solid tumors present between 10% and 50% of febrile neutropenia and more than 80% in hematological tumors (Rada et al., 2015). The fundamental purpose of caring for a patient with neutropenia is to reduce the risk of exposure to pathogens by identifying and eliminating possible sources of infection through prophylactic and educational measures for the patient and family (Coughlan and Healy, 2008) (Souza et al., 2013). Among the nursing care for the management of cancer patients with febrile neutropenia, three important aspects were taken into account: hygiene measures, nutrition and education according

to the Mexican nursing guide for the management of patients with febrile neutropenia (López et al., 2015). For Giraldo and López (2018) in their study they conclude that the care provided by the nurse to cancer patients with neutropenia contributes to their functional recovery, prevents delays in their treatment and provides education to the family and the patient. On the other hand, Girbés (2019) reports that compliance with nursing care facilitates the good evolution of patients with febrile neutropenia in the emergency room, since in these patients untreated infections reach a high mortality rate.

When caring for the patient, the nursing professional uses their knowledge, experience and intuition, as well as scientific principles and ethical aspects; all this within a scenario and situation validate their actions that turn nursing into a science (Queirós, 2016), however Peñafiel (2015) found that nurses have cognitive and behavioral deficiencies in the management of patients with febrile neutropenia.

That is why the purpose of the study was to know and analyze the knowledge and compliance of the care of the cancer patient with febrile neutropenia in nurses, the results will help to create strategies, correct deficiencies within the service that allow to strengthen the knowledge and the development of good standardized practices. In addition to contributing to institutional decision making that will help implement nursing protocols in the management of patients with febrile neutropenia in the emergency service, reduce complications during their hospital stay and improve their quality of life.

2. Materials and methods

Quantitative, descriptive, correlational, non-experimental, observational, cross-sectional, descriptive study. The study population consisted of all nursing professionals from the INEN Emergency Service, with a total of 58 nurses. For the knowledge variable, a 30-question questionnaire was used as an instrument. The scale to measure the scores was categorized through the Stanones test, obtaining a total of 30 points (30 items) where: high knowledge: 23 to 30 points, medium knowledge: 8 to 22 points, low knowledge: 0 to 7 points. For the variable compliance with the care of the patient with febrile neutropenia, a checklist with 15 items was used as an instrument, whose responses were coded according to the following scores: Observed = 1 and Not observed = 0. The scale to measure the scores were classified through the Stanones test where: compliance with good care: 12 to 15 points, compliance with regular care: 4 to 11 points, compliance with poor care: 0 to 3 points. These instruments were validated by 7 expert judges with extensive experience and expertise. In addition, a pilot reliability test was carried out and the following was obtained: for the Knowledge instrument a KR-20(0.80) and for the Checklist instrument a KR-20(0.76).

The data collection was carried out after applying the informed consent, then the questionnaire was answered and for the checklist the care of patients with febrile neutropenia was observed, without the participants knowing the criteria to be evaluated. The information obtained was processed using the statistical program SPSS and Excel, for the analysis of the information, inferential statistics were used and the results were presented in statistical tables. During the research process, the respective ethical considerations were applied.

3. Results

Table 1. Relationship between the level of knowledge and compliance with care for cancer patients with febrile neutropenia in nurses from the emergency service at the National Institute of Neoplastic Diseases, Lima 2020.

			Knowledge	Compliance
Spearman's Rho	Knowledge	Correlation Coefficient	1,000	-.035
		Sig. (2-tailed)	.	,796
		N	58	58
	Compliance	Correlation Coefficient	-.035	1,000
		Sig. (2-tailed)	,796	.
		N	58	58

In Table 1, Spearman's correlation shows a low relationship between the variables knowledge and compliance with care for cancer patients with febrile neutropenia (Rho= - 0.035), which indicates that there is no significant relationship between both variables (p= 0.796 >0.05.

Table 2. Distribution of frequencies and percentage of the dimensions Measures of hygiene, Nutrition and Education in relation to compliance with nursing care for cancer patients with febrile neutropenia

		Compliance					
		Incorrect		Correct		**Total**	
		N	**%**	**N**	**%**	**N**	**%**
Measures of hygiene	Incorrect	0	0.0	0	0.0	0	0.0
	Correct	4	6.9	54	93.1	58	100.0
	Total	4	6.9	54	93.1	58	100.0
Nutrition	Incorrect	0	0.0	0	0.0	0	0.0
	Correct	4	6.9	54	93.1	58	100.0
	Total	4	6.9	54	93.1	58	100.0
Education	Incorrect	0	0.0	0	0.0	0	0.0
	Correct	4	6.9	54	93.1	58	100.0
	Total	4	6.9	54	93.1	58	100.0

Source: Questionnaire applied to the nurses of the INEN Emergency Service

Table 2, shows that in the study, 93.1% of the nurses know and comply with hygiene, nutrition and education measures in cancer patients with febrile neutropenia.

Table 3. Compliance with the care of cancer patients with febrile neutropenia according to the Hygiene Measures dimension.

Measures of hygiene		N	%
Wear apron, cap, mask and gloves when caring for the patient.	Yes	55	94,8%
	No	3	5,2%
	Total	**58**	**100%**
Perform hand hygiene before and after contact with the patient, procedure and/or contact with the environment.	Yes	42	72,4%
	No	16	27,6%
	Total	**58**	**100%**
Disinfect with 70% alcohol the thermometer, the diaphragm of the stethoscope before using it with the patient.	Yes	17	29,4%
	No	41	70,6%
	Total	**58**	**100%**
Perform control of vital functions	Yes	50	86,2%
	No	8	13,8%
	Total	**58**	**100%**
Prepare parenteral and oral medications without breaking asepsis.	Yes	29	50%
	No	29	50%
	Total	**58**	**100%**
Verifies daily patient bathing in the shower and/or bed.	Yes	53	91,3%
	No	5	8,7%
	Total	**58**	**100%**
Evaluates skin, mucous membranes, natural orifices, and venous access insertion sites	Yes	55	94,8%
	No	3	5,2%
	Total	**58**	**100%**
Assesses and applies oral cavity care such as mouthwashes.	Yes	36	62,1%
	No	22	37,9%
	Total	**58**	**100%**
Performs the change of intravenous access and equipment according to service standards.	Yes	54	93,1%
	No	4	6,9%
	Total	**58**	**100%**
Ensures that the room of the patient with neutropenia is cleaned before the rest of the service environments.	Yes	2	3,5%
	No	56	96,5%
	Total	**58**	**100%**

Source: Questionnaire applied to the nurses of the INEN Emergency Service.

Table 3 shows that 94.8% of the nurses use EPPS, 72.4% perform hand hygiene, 86.2% perform vital functions control, it should be noted that in this item the control was considered valid. of 3 vital functions as established within the service, 91.3% verify daily bathing, 94.8% evaluate the skin, mucous membranes, natural orifices and venous access insertion sites. However, it was found that 50% do not prepare parenteral and oral medications without breaking asepsis, 37.9% do not evaluate and apply oral cavity care such as mouthwashes, and 96.5%(56) do not ensure that the cleaning of the room of the patient with febrile neutropenia is carried out before the rest of the service environments.

Table 4. Compliance with care for cancer patients with febrile neutropenia according to the Nutrition dimension

Nutrition		N	%
Make sure the patient eats cooked food and drinks boiled or bottled water.	Yes	57	98.2%
	No	1	1.8%
	Total	**58**	**100%**
Prevents and monitors proper intestinal elimination.	Yes	31	53.4%
	No	27	46.6%
	Total	**58**	**100%**

Source: Questionnaire applied to the nurses of the INEN Emergency Service

In Table 4, it is observed that 98.2% of nurses monitor that the cancer patient with febrile neutropenia consumes cooked food and drinks boiled or bottled water, however, 46.6% do not prevent or monitor the adequate elimination intestinal.

Table 5. Compliance with care for oncology patients with febrile neutropenia according to the Education dimension

Education		N	%
The patient and family are educated about the importance of consuming cooked foods such as plenty of fruits and/or vegetables during the neutropenic process.	Yes	43	74.1%
	No	Quince	25.9%
	Total	**58**	**100%**
Provides patient and family education on warning signs and hygiene measures.	Yes	41	70.6%
	No	17	29.4%
	Total	**58**	**100%**

Source: Questionnaire applied to the nurses of the INEN Emergency Service.

In Table 5, it is observed that the majority of nurses 74.1% educate the patient and the family about the importance of consuming cooked food such as many fruits and/or vegetables in their neutropenia process, in addition to the fact that 70.6% of nurses educate about warning signs and hygiene measures; however, there is a significant percentage of 25.9% and 29.4% of nurses who do not perform these activities.

4. Discussion

The nursing staff plays an important role in caring for cancer patients with febrile neutropenia, allowing them to avoid complications that put their integrity and quality of life at risk.

The general objective of the study was to determine the relationship between the level of knowledge and compliance with care for cancer patients with febrile neutropenia in the nurses of the INEN emergency service. Spearman's Rho (-0.035), which determines that there is no relationship between the variables (Table 1). These findings are similar to those found by Tarakcioglu et al., (2017), who found that nurses' general knowledge about neutropenia was above average, but care practices in infection control were insufficient. Likewise, Peñafiel (2015)

found that there are cognitive deficiencies in the management of patients with febrile neutropenia by nursing staff.

In the present study, the knowledge that nurses have about febrile neutropenia shows acceptable results and may be due to multiple factors such as specialization studies, working time, training or work experience; unlike care compliance whose results are not as satisfactory, which requires constant training, monitoring and continuous follow-up in order to avoid errors during care.

Regarding knowledge about hygiene measures and compliance (table 2), it was obtained that 93.1% of nurses know and comply with this dimension, evidencing this with regard to the use of EPPS, hand hygiene, care of mucous membranes and skin, change of venous accesses, control of vital functions and verification of daily bathing (table 3) keeping similarity with the work of Peñafiel (2015); making these practices a strength within the emergency service for the prevention of infections. There are studies that show that health personnel can contaminate hands and gloves with pathogens such as gram-negative bacilli, Staphylococcus aureus, enterococci or Clostridium difficile, when touching the patient, their environment or performing any procedure. These microorganisms can survive on hands between 2 and 60 minutes (Santolaya et al., 2005) (Diaz, et al., 2013). However, regarding the preparation of oral and parenteral medications, it was found that 50% do not use aseptic measures and 70.6% do not disinfect the diaphragm of the stethoscope before using it, all of which can mean a gateway to the infection. Thus, it was also found that in terms of monitoring the cleanliness of the environment for patients with neutropenia, 96.5% do not do so. These results are similar to those of Tarakcioglu (2017) who found that nurses break sterility when preparing medications, as well as a low rate of stethoscope disinfection, differing in this study from nursing staff 62.7% if they knew that patient rooms with neutropenia should be cleaned before other areas. Therefore, it is necessary to reinforce the practice of the personnel in the points that are weak through training and constant observations to reduce the risk of cross-infection.

Regarding knowledge about Nutrition and compliance (table 2), it was obtained that 93.1% of the nurses know and comply with this dimension. It should be borne in mind that neutropenic patients have problems maintaining adequate nutritional status due to prolonged loss of appetite, inability to properly digest, absorb and metabolize nutrients, leading to malnutrition. This situation has a high impact that can worsen or prolong the immunosuppression induced by antineoplastic treatment, increasing the risk of infectious complications (López et al., 2015) (Gómez, et al., 2012). In the present study, it was observed that 98.2% of nurses monitor that cancer patients with neutropenia consume cooked food and drink boiled water (table 4), these results differ with Peñafiel (2017) who found that 55% of The nurses do not know the type of food that a febrile neutropenic patient can consume. Raw food and poorly treated water are prone to germs, and mechanical washing is not enough for immunosuppressed patients (Gómez et al., 2012). Another result was that 46.6% of nurses do not prevent or monitor proper bowel elimination. Constipation can cause anal tears or fissures, causing pain and serious infections (INC, 2015). That is why nursing intervention is important in the prevention and treatment of constipation.

Regarding knowledge about education and compliance (Table 2), the result was that 93.1% of nurses know and comply with the care of cancer patients with febrile neutropenia. Knowledge helps reduce the risk of complications by learning and practicing the skills necessary to better manage your health (Soza, 2018). In Table 5, 74.1% of the nurses educate the patient and the family about the importance of consuming cooked food, both fruits and vegetables, during the neutropenia process. In addition, 70.6% offer education to the patient and the family on warning signs and hygiene measures. These findings are similar to those of Peñafiel (2015), who found that 66% offer instructions to patients and relatives about their pathology and ways to avoid infections. From this, the importance of the nurse in the continuous education of the patient and the family is deduced, thus avoiding prolonging their hospital stay and favoring their return home.

Finally, caring for cancer patients with febrile neutropenia requires professional nursing skills to reduce complications by providing the necessary conditions to meet the patient's needs and improve their quality of life (Alsharawneh et al., 2020).

5. Conclusions

The present study showed that there is no relationship between the level of knowledge and compliance with the care of cancer patients with febrile neutropenia in the nurses of the INEN Emergency Service, however, when evaluating the level of knowledge of the nurses, it was found that most of them have a high knowledge in the dimensions of hygiene, nutrition and education, however there is a significant percentage that has to improve their knowledge regarding the general aspects of febrile neutropenia. Likewise, with regard to compliance, it was found that most of them perform regular care, but there are activities that must be monitored, such as monitoring the cleanliness of the environment, the preparation of medications, and the disinfection of biomedical equipment, which can increase the risk. of cross infections and days of hospital stay.

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