

Knowledge of Nursing Professional on the Safety of the Oncological Patient in Chemotherapy

<http://dx.doi.org/10.32635/2176-9745.RBC.2019v65n1.274>

Conhecimento dos Profissionais de Enfermagem sobre Segurança do Paciente Oncológico em Quimioterapia Conocimiento de los Profesionales de Enfermería sobre Seguridad del Paciente Oncológico en Quimioterapia

Aline Gonçalves da Costa¹; Marta Solange Camarinha Ramos Costa²; Elisângela da Silva Ferreira³; Priscila Cristina de Sousa⁴; Marília Monteiro dos Santos⁵; Danielle Etienne de Oliveira Bezerra Lima⁶; Aline Maria Pereira Cruz Ramos⁷

Abstract

Introduction: Patient safety is becoming increasingly important at the national and international levels, especially in oncology, where there is a growing concern about the errors/adverse events related to antineoplastic chemotherapy drugs, with the main premise being the quality of health care and care safe. **Objective:** To evaluate the knowledge of nursing professionals regarding the safety of cancer patients undergoing chemotherapy. **Method:** A qualitative study, carried out at the outpatient clinic of a High Complexity Oncology Care Unit, located in the State of Pará. Data were collected through a questionnaire to 11 non-participating nursing professionals, analyzed according to the analysis of Bardin content. **Results:** Four categories of content were identified: (1) the team's knowledge about the steps of chemotherapy treatment and general perceptions about patient safety; (2) hand hygiene and risk of falling; (3) inaccuracy in patient identification and effective communication; and (4) safe administration of antineoplastic chemotherapy. In these categories it was possible to verify knowledge gaps in the stages of the treatment and safe administration of antineoplastic chemotherapy, in the identification of the patient and in effective communication. It was observed the commitment of service professionals to implement the National Patient Safety Program (NPSP) with the identification of patients with badges, printed prescriptions and protocols of extravasation and spill. However, adherence to hand hygiene was not observed. **Conclusion:** The need for continuing and continuing education of professionals was inferred, despite the existence of care items that comply with the protocols of the NPSP.

Key words: Oncology Nursing; Knowledge; Ambulatory Care; Antineoplastic Agents; Patient Safety.

Resumo

Introdução: A segurança do paciente vem adquirindo grande importância em níveis nacional e internacional, especialmente na oncologia, na qual há uma preocupação crescente com os erros/eventos adversos relacionados às drogas quimioterápicas antineoplásicas, tendo como principal premissa a qualidade do cuidado em saúde e a assistência segura. **Objetivo:** Avaliar o conhecimento dos profissionais de enfermagem quanto à segurança do paciente oncológico em tratamento quimioterápico. **Método:** Estudo qualitativo, realizado no ambulatório de uma Unidade de Assistência de Alta Complexidade em Oncologia, localizado no Estado do Pará. Os dados foram coletados mediante aplicação de questionário a 11 profissionais de enfermagem e de observação não participante, analisados segundo a Análise de Conteúdo de Bardin. **Resultados:** Identificaram-se quatro categorias de conteúdo: (1) o conhecimento da equipe sobre as etapas do tratamento quimioterápico e percepções gerais acerca da segurança dos pacientes; (2) higienização das mãos e risco de queda; (3) inexactidão na identificação do paciente e na comunicação eficaz; e (4) administração segura de quimioterapia antineoplásica. Nessas categorias, foi possível constatar falhas de conhecimento nas etapas do tratamento e administração segura de quimioterapia antineoplásica, na identificação do paciente e na comunicação eficaz. Observou-se o empenho dos profissionais do serviço em implementar o Programa Nacional de Segurança do Paciente (PNSP) com a identificação dos pacientes com crachá, prescrições impressas e protocolos de extravasamento e derramamento. Entretanto, a adesão à higienização das mãos não foi observada. **Conclusão:** Inferiu-se a necessidade de educação permanente e continuada dos profissionais, apesar da existência de itens assistenciais que atendem aos protocolos do PNSP.

Palavras-chave: Enfermagem Oncológica; Conhecimento; Assistência Ambulatorial; Antineoplásicos; Segurança do Paciente.

Resumen

Introducción: La seguridad del paciente es cada vez más importante a nivel nacional e internacional, especialmente en oncología, en el cual existe una creciente preocupación por los errores/eventos adversos relacionados con los medicamentos antineoplásicos para quimioterapia, cuya principal premissa es la calidad de la atención médica y la atención segura. **Objetivo:** Evaluar el conocimiento de los profesionales de enfermería sobre la seguridad de los pacientes con cáncer que se someten a quimioterapia. **Método:** un estudio cualitativo, realizado en la clínica ambulatoria de una Unidad de Atención Oncológica de Alta Complejidad, ubicada en el estado de Pará. Los datos fueron recolectados a través de un cuestionario a 11 profesionales de enfermería nos participantes, analizados de acuerdo con el contenido del análisis de Bardin. **Resultados:** Se identificaron cuatro categorías de contenido: (1) el conocimiento del equipo sobre los pasos del tratamiento de quimioterapia y las percepciones generales sobre la seguridad del paciente; (2) higiene de manos y riesgo de caerse; (3) inexactitud en la identificación del paciente y la comunicación efectiva; y (4) la administración segura de quimioterapia antineoplásica. En estas categorías fue posible verificar las brechas de conocimiento en las etapas del tratamiento y la administración segura de la quimioterapia antineoplásica, en la identificación del paciente y en la comunicación efectiva. Se observó el compromiso de los profesionales de servicio para implementar el Programa Nacional de Seguridad del Paciente (PNSP) con la identificación de pacientes con credenciales, prescripciones impresas y protocolos de extravasación y derrame. Sin embargo, no se observó adherencia a la higiene de las manos. **Conclusión:** Se infirió la necesidad de educación permanente y continuada de los profesionales, a pesar de la existencia de elementos de atención que cumplen con los protocolos del PNSP. **Palabras clave:** Enfermería Oncológica; Conocimiento; Atención Ambulatorial; Antineoplásicos; Seguridad del Paciente.

¹ Universidade Federal do Pará (UFPA), Belém (PA), Brazil. Orcid iD: <https://orcid.org/0000-0002-1820-5771>

² UFPA, Belém (PA), Brazil. Orcid iD: <https://orcid.org/0000-0003-3025-1145>

³ UFPA, Belém (PA), Brazil. Orcid iD: <https://orcid.org/0000-0002-2506-1622>

⁴ UFPA, Belém (PA), Brazil. Orcid iD: <https://orcid.org/0000-0001-8468-2405>

⁵ UFPA, Belém (PA), Brazil. Orcid iD: <https://orcid.org/0000-0002-3571-734>

⁶ UFPA, Belém (PA), Brazil. Orcid iD: <https://orcid.org/0000-0002-8154-0310>

⁷ UFPA, Belém (PA), Brazil. Orcid iD: <https://orcid.org/0000-0001-8812-2923>

Address for correspondence: Aline Gonçalves da Costa, Travessa Primeira de Queluz, 255 - Belém (PA), Brazil. CEP 66090-520. E-mail: gc_aline@hotmail.com



INTRODUCTION

The quality of the patient-related healthcare safety is becoming very important at national and international levels, whose main objective is a safe care. Therefore, the World Health Organization (WHO) created the *World Alliance for Patient Safety* that has the objective to organize the concepts and definitions about patient safety and propose measures to reduce the risk of adverse events¹.

In Brazil, Ordinance GM/MS number 529/2013 created the National Program of Patient Safety (Programa Nacional de Segurança do Paciente – PNSP)², in order to contribute for the qualification of healthcare in every health facility in the national territory. Through Ordinance GM/MS number 1.377, dated July 9, 2013 and Ordinance number 2.095, dated September 14, 2013, the basic patient safety protocols were approved as instruments for the implementation of safety actions of the patient as: (i) identification of the patient; (ii) prevention of pressure ulcer; (iii) safety of the prescription, use and administration of drugs; (iv) safe surgery; (v) practice of hand hygiene in the health service; and (vi) prevention of falls. These protocols support the implementation of the PNSP and safety protocols, guides and manuals, further to the incentive to report and analysis of adverse events occurred¹.

In 2008, the REBRAENSP – Rede Brasileira de Enfermagem e Segurança do Paciente (Brazilian Network of Nursing and Safety of the Patient) associated to the International Network of Nursing and Safety of the Patient of “Organização Pan-Americana da Saúde (OPAS)” was created, formed by nurses from the areas of teaching, assistance, management and research of private and public institutions. Amongst the goals of the network, it stands out the disclosure of the basic assumptions of patient safety, identification of critical spots for the patient safety and development of proper tools (guides of clinical practice, groups of analysis of adverse events and simulations)³.

Actually, for the patient safety to happen, the culture of safety needs to be structured within the institutions with the creation of a proper communication process, trust, organizational learning, collective commitment around safety, leadership, importance of the theme and non-punitive approach to error⁴.

There is an increasing concern with the errors in oncology in regard to chemotherapies because of the effects resulting from their use that, sometimes, can be fatal. This occurs, because antineoplastic drugs have a low therapeutic rate, the lethal dose is too close to the therapeutic dose. Further to the narrow safety margin, which makes the drugs dangerous and require redoubled attention of the professionals involved in the

process of prescription, preparation, dispensation and administration⁵⁻⁷.

Current data reveal that the quantity of deaths resulting from health adverse events is alarming⁴. These events, in one or more stages of the process of assistance, as the administration of the drug, may have serious consequences and lead the patient to death⁸. The role of the oncologic nurse involves the application of oncologic nursing practices and standards of the *Oncology Nurse Society* (NOS) and of the *American Nurse Association* (ANA) developed to measure and evaluate the holistic assistance with quality. For this, it is required that the nursing team is qualified because of the specificities of the mechanism of action of the drugs, in addition to possible toxicities of the treatment^{9,10}.

Based in this, it is understandable the importance of investigating whether oncology nursing professionals are aware of the updates and scientific progress of patient-related safety. Therefore, the objective is to evaluate the knowledge of nursing professionals about the safety of the oncologic patient in chemotherapy in compliance with the PNSP created by the Health Ministry.

METHOD

It is a qualitative, exploratory and descriptive research. The object of the study was the Service of Antineoplastic Chemotherapy of “Unidade de Atendimento de Alta Complexidade em Oncologia (Unacon)” (High Complexity Oncology Care Facility) of a licensed school-hospital for specialized care in oncology in Brazilian Northern region from January to March 2018.

The study enrolled 12 nursing professionals of the oncologic treatment unit (6 licensed practical nurses and 6 nurses) according to the following inclusion criteria: (i) nursing professionals; (ii) staff involved in the outpatient antineoplastic chemotherapy treatment; and (iii) who accepted to participate of the study and signed the Informed Consent Form (ICF). The exclusion criteria were: who did not accept to participate of the study, who are not assigned to nursing and whom are not professionals acting in the chemotherapy outpatient unit. After the exclusions, the population was formed by 11 nursing healthcare providers (6 licensed practical nurses and 5 nurses).

Data collection occurred in two phases. In the first, a research questionnaire created and based in the precepts of patient safety according to PNSP/2013 was applied. To apply the questionnaire the healthcare providers were earlier contacted by the investigator who provided information about the object of the study, technique of data collection and ethical aspects.

The questionnaire contained closed questions about gender, professional category, time of education and work in the institution and work shift; these data granted the creation of a profile of the samples and open questions about the care provided to patients in antineoplastic chemotherapy as: guidelines and care provided, phases of chemotherapy, risks of exposure in the administration of antineoplastic chemotherapy and signs and symptoms related to the application.

It was offered a time period of 24 hours to respond to the questions and deliver the questionnaires, since the number of professionals was reduced and there were demands from the patients; it was not possible to apply the first stage as a form during the work hours, not even together with the second stage.

The second stage was conducted during observations *in loco* and application of a structured script (*checklist*). This stage had the objective of observing the phases of the treatment with antineoplastic chemotherapy *in loco*, in its various moments, since receiving the patient, verification of the patient's prescription, suitability of Personal Protective Equipment (PPE), arrival of the chemotherapies from the pharmacy, packaging, administration of the drug, monitoring and logging of the drugs administered until the disposal of the materials involved in the process. It was a convenience sample because of the fixed shift of the team assisting the patients; ten observations were made during 30 hours accompanied by four licensed practical nurses and one nurse.

The thematic content analysis of Bardin¹¹ supported the analysis of the data of the questionnaire in order to interpret the qualitative material, ensuring an objective, systematic description with richness of details expressed in this material. The data were organized and categorized around three poles: a) pre-analysis, non-judgmental initial reading ("*naive*"); b) exploration of the material (structural analysis and categorization of the content); and c) treatment of the results (inference) with critical interpretation and discussion.

To ensure the anonymity of the subjects and results, they were coded with the acronym ENF for nurses and TE for licensed practical nurses followed by the number of the questionnaire. The Ordinance of "Conselho Federal de Enfermagem - COFEN" (Federal Nursing Council) number 545, 2017¹² disposes about professional categories and the acronyms selected complied with this rule.

The Institutional Review Board of "Núcleo de Pesquisa em Oncologia" (Oncology Research Nucleus) of Federal University of Pará approved the study, report number 2,440,663/20-17 and the amendment, report number 2,562,304/2017. The study complied with the current ethical requirements.

RESULTS

The study sample was entirely formed by females. Of the 11 professionals, five (45.4%) were nurses, all experts in oncologic nursing and with updated courses; four nurses (80%) had a Master Degree. Time of education was over 12 years with approximately six years of work in the service.

The other six professionals were licensed practical nurses (56.4%), time of education was from four to 12 years or more with working experience from three to six years. Three (50%) were not trained prior to starting to work at the antineoplastic chemotherapy service, but affirmed they have participated of updated courses in oncology.

In relation to the process of categorization of the data, four categories emerged, they are presented in parallel with the non-participant and direct observation of the care to oncologic patients in outpatient treatment with antineoplastic chemotherapy.

CATEGORY 1: KNOWLEDGE OF THE TEAM ABOUT THE STAGES OF THE CHEMOTHERAPIC TREATMENT AND GENERAL PERCEPTIONS ABOUT THE PATIENTS' SAFETY

While analyzing the responses about the stages of the antineoplastic treatment through the question "What are the mandatory stages of the antineoplastic chemotherapy treatment?" it was possible to verify that the majority of the participants had a fragmented or incomplete knowledge about the subject, as can be observed below.

Medical prescription, appointment, evaluation of the prescription, handling, checking, administration, logging and disposal (ENF3).

After the biopsy, the patient is referred for consultation with the oncologist and after this, will be referred for chemotherapy or surgery (TE2).

It is important to point out also that a nurse was unable to respond (blank) the question about the stages of antineoplastic chemotherapy and quoted just the stages of administration of the chemotherapeutic as below:

Pre-chemotherapy, chemotherapy and post-chemotherapy (ENF4).

In relation to the question "To what risks the patients in chemotherapeutic treatment are exposed?" the responses were:

Leakage/spill, local contamination, adverse reactions (ENF5).

Leakage, allergic reaction and spill (TE5).

With this it was possible to realize yet that the professionals were attentive to the non-modifiable risks as the commitment of the venous network. The attention is mentioned in the response to the question “What are the nursing care that must be followed when using a venous access to administer the antineoplastic drugs?”.

Prefer thick veins and in upper limbs (MMSS), avoid areas of articulation, do not puncture the ipsilateral arm of the mastectomy. Be always attentive during the administration of the chemotherapy and stop the infusion if there is suspicion of leakage. Always “wash” the vein after the infusion of each chemotherapy [...] (ENF1).

[...] avoid administration of chemotherapy in peripheral veins with scalp. Fixate the venous puncture, observe the presence of phlogistic signs. Avoid puncture veins in the ipsilateral member where radiotherapy was applied and where mastectomy was done (TE1).

In relation to the mentioned interventions when nurses were asked about “Which measures are taken in case of chemotherapics leakage or spillage?”, the response was:

Leakage: interrupt the infusion without removing the venous catheter, aspire the content leaked, remove the venous catheter, if vesicant drug, apply hot or cold compress according to the drug. May administer 1 mL of dexamethasone in fan where the leakage occurred in the leaked site. Spill: the local must be isolated, put glove, mask and cap before initiating the procedure. If liquid is spilled, clean with dry compress; if dust, use wet compresses. Log the event (ENF1).

Interrupt infusion. Refer to the protocol of the institution: kit of spillage/kit of spill (ENF3).

In relation to “general perceptions of the nursing team about patient safety”, the nurses listed the risks only to the patient and underrated the occupational risks as is seen in the response:

Had all measures, protocols and care been applied, we ensure that the antineoplastic therapy occurs as smoothly as possible with all the benefits to the patient (ENF1).

CATEGORY 2: HYGIENE OF THE HANDS AND RISK OF FALLING

Amongst the conducts reported by the nurses, none of the participants mentioned the hygiene of the hands

as procedure of care to the patient in chemotherapy and this conduct was corroborated during an observational script. In every caring process observed, none of the professionals made the hygiene of the hands, neither before nor after having contact with the patient: during the puncture, checking of vital signs, installation of infusion of antineoplastic chemotherapy and contact with the close vicinities of the patient.

Furthermore, the lack of risk assessment of falling during the care to the oncologic patient, not being applied any scale to evaluate proper risk factors tailored to the profile of each patient. In despite of this, the professionals described some care while responding to the question “What are the care provided to bed-ridden patient or with hampered and/or reduced mobility during the outpatient chemotherapy treatment? Is Morse scale applied?” such as:

Walk the patient to the restroom, guide the companion to help the patient, transport the patient in wheelchair. Accommodate the patient in the bed with side rails or in a chair close to the restroom. We did not use evaluation scale (ENF1).

Help the patient in his mobility and comfort (TE3).

In addition to the care reported, in the non-participative observation, it was possible to realize that the patients who had risk factor of falling were placed in beds close to the nursing station and it was allowed the presence of a companion during the chemotherapy session, which strengthened the safety measures for oncologic patients with risk of falling.

Still, it was observed that the nursing caregivers guided the relatives and patients about preventive measures of falling when the patients arrived from the antineoplastic chemotherapy outpatient unit.

CATEGORY 3: INACCURACY IN THE IDENTIFICATION OF THE PATIENT AND EFFECTIVE COMMUNICATION

Based in the responses to the question “How the identification of the patient in the chemotherapy outpatient unit is done?” it was observed that the identification of the patients was done with badges with full name and number of inscription. During the non-participant observation, it was not possible to check the subjective confirmation of the identification of the patient before the administration of the antineoplastic chemotherapy.

The following answers to the questions “Do you guide the patients about the drug they will take? If yes, what information are given?” and “In your opinion, what is

important to develop a good bond professionals-patient? Does this relation impact the adherence of the patient to the chemotherapy treatment?":

Yes. I provide guidance about possible reactions and what can happen as alopecia, nausea, vomits, diarrhea, non-exposure to sun, care with food, take good amount of liquids (TE6).

To develop a good bond, it is necessary empathy, dialogue, accessible language. Yes, it influences the adherence of the patient e (ENF5).

It was proved, yet, that during non-participant observation, all the professionals offered orientations to the patients and relatives about care with the route of infusion, signs and symptoms of leakage or infiltration of antineoplastic chemotherapy.

In relation to the question about communication between professionals "Have you noticed any error in the prescription of antineoplastic chemotherapy? If yes, which was/were your conduct(s)?", the response was that there were verbal communication.

I reported to the attending physician [error in the prescription of antineoplastic chemotherapy] and to the pharmacy to correct the error (ENF1).

I reported to the attending nurse [labels switch with the name of the patient] (TE3).

However, there are some professionals who realized they made errors in the written prescription (antineoplastic chemotherapy prescription), but it was not possible to identify if any conduct was done:

In the prescriptions, it is written intravenous fenergan, it is intramuscular (TE5).

CATEGORY 4: SAFE ADMINISTRATION OF ANTINEOPLASTIC CHEMOTHERAPY

It was evidenced through the question "Which information are encountered in the prescriptions of antineoplastic drugs?", that in the institution the prescriptions are typed and printed, in addition to containing essential information to prevent drug errors, as:

Name of the patient, inscription, age, weight, height, body mass index, dose of the drug, time of infusion, day, cycle, name of the physician (ENF1).

Drug prescribed, protocol, cycle, name of the patient, inscription, age, date, type of cancer and observation to check exams (TE6).

In relation to the question "Which procedures are performed prior to initiate the administration of antineoplastic chemotherapy?", it stands out:

Check vital signs, evaluation of the performance status and blood count, if necessary (Y/N). Peripheral venous puncture or *Port-a-cath*, intravenous chemotherapy (intravenous chemotherapy). Confirm the permeability of the venous access prior to the administration of chemotherapy (if intravenous chemotherapy). Check the name of the patient in the prescription and the label of the chemotherapy against the data of the prescription (drug, dilution, time of infusion, etc.) (ENF1)

Puncture of venous access is performed, preparation and administration of pre-chemotherapy drug (TE2).

It must be mentioned that, throughout the non-participant observation, only the technical professionals certified whether the venous access was ready to use (permeable) and checked if the drugs delivered by the pharmacy were correct. In addition, the main routes of access for antineoplastic chemotherapy were the peripheral venous access, orally and central access totally implanted (*Port* or *Port-a-cath*). It was also observed that the checking of the name, dose, time and route of administration in the label of the antineoplastic chemotherapy was made only by comparing with the drug prescription; but the patient was informed when the infusion would begin. Another aspect to be considered is that all the pre-chemotherapies prescribed were administered properly before the antineoplastic chemotherapy began, an important step for the efficacy of the drug and of the treatment. Checking of vital signs and occasional patients' complaints were evidenced.

The responses below demonstrated how the professionals recorded the administration of the antineoplastic chemotherapy in the chart when the following question was made "How do you record the administration of the antineoplastic chemotherapy in the patient's chart?":

Through the history, describing the cycle, drug, current status [PS: *performance status*], possible reactions, vital signs and other forms for the safety of the patient (ENF2).

I check the time of beginning and end of the infusion. The location of the venous puncture, type of catheter (jelco, nexiva etc). I note down the vital signs and possible complications (TE1).

In relation to the record of the care provided, during the interval of non-participant observation, it was

concluded that the nurses took notes in the patients' charts, and the licensed practical nurses, at the back of the prescription, with the name of the prescribed drug, dose, hour, vital signs, route of administration and side effects, if the case.

It was inferred the association of "prescription checking/evaluation" to the process of record/note after the administration of the antineoplastic chemotherapy when the professionals responded to the question "Who must evaluate/supervise the antineoplastic drug prescription?", as can be concluded:

Who administer (TE4).

Licensed practical nurse and nurse, depending on the drug (TE2).

It was identified that some professionals had difficulties in differentiating vesicant and irritating antineoplastic when asked about "What is a vesicant or irritating antineoplastic drug?". Of the 11 (100%) professionals, seven (63.7%) failed or confounded (five licensed practical nurses and two nurses) when responding what are vesicant drugs, but were able to distinguish that the reactions are more intense than those provoked by irritating drugs.

Vesicants are drugs that provoke severe irritation [...]. Irritating are drugs that cause cutaneous irritation (ENF3).

Vesicant antineoplastic, if leaked, may cause a larger damage than the irritating drug (TE2)

It was noted that all the professionals knew to describe the protective equipment that must be used through the responses to the question "Which protective equipment are used to handle antineoplastic chemotherapics (preparation, administration, waste disposal and patients' excretions)?". Relevant responses:

Cap, goggles, waterproof long sleeve overalls, gloves, medical safety shoes [administration]. Laminar flow hood, mask [preparation] (ENF2).

Coat, procedures gloves, protection goggles, cap (TE6).

In despite of these answers, during the non-participant observation, the professionals wore specific clothes for the area with short sleeve, mask PFF2 with filter was used only in transportation (styrofoam box) from the pharmacy to the chemotherapy room, installation and disposal of antineoplastic chemotherapy. During the administration

of pre-chemotherapics, they wore disposal surgical mask with elastic.

Important to note also, that a technical professional was responsible for the transportation, administration and disposal of antineoplastic chemotherapy, but an on-duty nurse made the request of drugs to the pharmacy, however she did not check the drugs.

The outstanding response about avoiding errors in the administration of antineoplastic chemotherapy was:

Follow the nine correct steps in the administration of the drugs (TE1).

DISCUSSION

The so called *feminization of the workplace force* is one of the outstanding tendencies: expansion of the installed capacity, municipalization of the jobs, attendance at outpatient units, improved qualification of the teams, and flexibilization of the employment bond. Considering the history of nursing in this context, as the first female profession in Brazil¹³ with university education, it was expected a total prevalence of female professionals in this study.

Even though, the lack of training in half of the professionals of the study is a worrying information and also found in other studies¹⁴⁻¹⁶, since nursing professionals are the last link of the healthcare providers in the treatment with chemotherapics medications. This fact may raise the risk of errors and adverse events, in addition to exposing occupational health¹⁷.

In this perspective, following the guidelines of the ASHP – American Society of Health-System Pharmacists as a condition of accreditation of nursing with chemotherapeutic medications ensures the support and safe functioning of the antineoplastic chemotherapy service such as: organizational policies and procedures that require nursing professionals with completed training, demonstration of competency in the administration of intravenous medications and periodical reevaluation of the employees⁷.

It is essential to know antineoplastic chemotherapy-related modified risks as leakage of drugs, involvement of blood vessels and drugs spill to avoid acute reactions and reduce the psychological effects associated to the occurrence of accidents or adverse events¹⁸.

In addition to this, the measures mentioned to prevent leakage or spill of antineoplastic chemotherapics concur with those found in the literature¹⁹, despite of this competency being assigned to licensed practical nurses in the institution studied. The administration of antineoplastic chemotherapy is accountable to the nurse as

disposed in Ordinance number 569, 2018 of COFEN²⁰. The nurse must, yet, supervise its team and promote actions of permanent education to push away potential occupational risks.

Analyses about perceptions of occupational safety, as risk of exposure to drugs and potential contamination of the work environment were also brought up, in addition to ergonomic and psychosocial factors. The responses of the professionals suggested deficit of knowledge such as it was encountered in the study of Senna et al.²¹. These affirmatives indicate the necessity of focus in the team training to protect them from toxic effects when exposed to antineoplastic chemotherapy and its residuals during preparation, administration and disposal because these drugs are mutagenic, carcinogenic and teratogenic²²⁻²⁴.

In relation to hands hygiene of the professionals, the conduct complies with the protocol of the Ministry of Health²⁵, which must be applied through the whole line of care (patient, health professional and care or treatment direct to the patient or in its vicinities), for the safety of the patient, healthcare professionals and of all involved in the patient care.

It was observed that in what concerns PPE, clothes and PFF2 mask were non-conformant with RDC number 220 dated 2004. Studies show that the use of PPE is ignored by the majority of nursing professionals who handle chemotherapeutic drugs; this indicates the importance of developing educational programs that encourage the team to wear PPE to overcome this fragility of knowledge. This study demonstrated yet that online education can be effective as a medium to promote safe practices in compliance with PPE wear²⁶.

There are studies that show that oncologic hospitals have high incidence of falls around 18% above general hospitals. Oncologic patients, in their majority, have more fragile nutritional status and use potent analgesic drugs for pain control and relief, which may predispose them to a higher risk of falls. Strategies as the development of a protocol to prevent falls with criteria for early detection of high risk patients reinforce the barriers for fall prevention, even for persons in outpatient unit²⁷.

To avoid these events, REBRAENSP and the Ministry of Health recommend a program for risk evaluation tailored to the person and to the environment, using the universal scale of risk assessment (Morse scale), screening or evaluation to individualize the care, accessible language to inform and guide the patient and companion, creation of an institutional indicator of falls based in a reporting and managing system of these adverse events. In addition to these, creation of a safe environment for care like non-slip floor, proper furniture and lightning, clothes and shoes and safe movement of the patients²⁹. These

recommendations are targeted for continuous primary prevention for the sake of effectiveness in the protection of oncologic patients facing fall risks.

The correct identification of the patient, on its turn, attempts to avoid or reduce the occurrence of incidents and ensure proper care or treatment to the patient, including three interventions: (I) identify the patient; (II) educate the patient, companion, relative or care-provider; and (III) confirm the identification of the patient prior to providing care³⁰.

Note that in the institution studied, the identification of the patients concurs with the identifiers (at least two) that must be utilized in the recommended intervention I as: full name of the patient; full name of the patient mother; date of birth of the patient and number of the patient chart³⁰. However, interventions II and III were not observed. To meet them, it is recommended that the professional in charge of the care asks the name of the patient, relative or companion and check the information contained in the identification of the patient with prescribed care/treatment or the label of the material that will be utilized, even if the health professional knows the patient to ensure it received the proper treatment³⁰.

While researching the importance of the communication professional-patient process, it was observed that the communication referenced by licensed practical professionals to the patient did not, seemingly, come with a concern about how it was communicated, since the professionals were unaware whether the communication was understood. So, REBRAENSP²⁸ suggests as essential aspect for an effective communication the significant understanding or comprehension by the recipient (patient, companion, relative) of the information reported or intended by the professionals. In this perspective, for the clinical information to be transmitted consistently, team attitudes, skills and knowledge are necessary and, most of all, a proper communication³¹.

Furthermore, the ineffective communication among professionals can also resonate in the care provided and contribute for negative endpoints³². Therefore, it is recommended that an evaluation of the process of communication of the health service occurs, identifying the critical spots that may lead to the occurrence of adverse events.

As for the process of administration of antineoplastic chemotherapy, further to the process of administration itself quoted by the professionals, it also encompasses the safe transportation, disposal and registration³³. Thus, it is relevant to note the adequacy of the safe drugs prescription as carried out by the institution, which includes: identification of the patient with, at least, full name and date of birth, identification of the prescriber (name,

professional registration and signature); date of expiration and readability³⁴. Noticeable was the lack of checking/evaluation (pharmacist and nurse)³² prior to preparation and administration of the medical prescription.

It is worth mentioning that the nursing records are indispensable elements to the caring process and, when worded as close as possible to portray the reality to be documented, as analyzed in the study, grant an effective communication and legal support to health professionals and services. In addition, the records are the most important evaluation tool of the quality of the nursing action, representing 50% of the inherent information to the care to the patients recorded in the chart³⁵.

It is necessary to emphasize that every health professional, while administering a medication, must always check the “nine correct procedures”: correct drug, dose, route of administration, time, record, action, form and response³⁶. This conduct improves the safety and the quality of the assistance provided to the patient³⁷.

Evidences suggest, therefore, that the implementation of standards and safety processes help to prevent errors of administration of antineoplastic chemotherapy; among them, know the types of drugs, which improves the safety of the patient and ensures safer care providing³⁴.

CONCLUSION

The results of the research indicated some fragilities in the knowledge nursing professionals have for a safe care to the oncologic patient for failing to perceive the occupational risks in the antineoplastic chemotherapy outpatient unit while neglecting biosafety essential safety topics as hands hygiene and proper use of PPE, in addition to insufficient involvement with the guidelines provided to the patients or relative when relevant clarifications need to be informed for a well succeeded treatment. However, the team endeavor to comply with PNSP safety protocols of the patients is remarkable with the identification of patients with badges, electronic prescriptions and development of protocols for leakage and spill.

It is understood, therefore, the importance of the implementation of standard systems to facilitate a safer administration of antineoplastic chemotherapy. For this, it is necessary a permanent education of oncologic patients healthcare providers with educational workshops, lectures and discussion about the theme to develop a culture of safety in oncologic chemotherapy.

It is expected, as a contribution of this research, that the results ensure the creation of oncologic patient-driven safe nursing care actions and strategies in antineoplastic chemotherapy according to the reality lived by the subjects. In addition, it could be seen as a bases for

discussion about the planning of interventions to improve the quality of the care.

The study sample may be considered a limitation, because it was not random in the phase of observation; it is a small sample, and only the results found herein must be considered.

CONTRIBUTIONS

Aline Gonçalves da Costa and Aline Maria Pereira Cruz Ramos contributed for the research conception and planning, data gathering, analysis and interpretation. Marta Solange Camarinha Ramos Costa and Elisângela da Silva Ferreira contributed for the critical revision and approval of the final version of the study. Priscila Cristina de Sousa, Marília Monteiro dos Santos and Danielle Etienne de Oliveira Bezerra Lima contributed for the critical and intellectual review.

DECLARATION OF CONFLICT OF INTERESTS

There are no conflict of interests to declare.

FUNDING SOURCES

None.

REFERENCES

1. Ministério da Saúde (BR). Programa Nacional de Segurança do Paciente [Internet]. Brasília: Ministério da Saúde; 2017 [acesso 2017 Ago 23]. Disponível em: <http://portalms.saude.gov.br/acoes-e-programas/programa-nacional-de-seguranca-do-paciente-pnsp/sobre-o-programa>.
2. Ministério da Saúde (BR). Portaria nº 529, de 1º de abril de 2013 [Internet]. [acesso 2017 Ago 23]. Disponível em: <http://www.saude.mt.gov.br/upload/controle-infecoos/pasta2/portaria-msgm-n-529-de-01-04-2013.pdf>.
3. Urbanetto JS, Gerhardt LM, Guirardello EB, organizador. Segurança do paciente: avanços e desafios para a enfermagem [Internet]. 1º Congresso Internacional da Rede Brasileira de Enfermagem e Segurança do Paciente; 2016 Mar 8-10; Campinas, SP. Campinas, SP: UNICAMP; 2016. [acesso 2017 Ago 30] 303 p. Disponível em: <http://www.rebraensp.com.br/phocadownload/publicacoes/ANAIS%20I%20CIREBRAENSP%202016%20FINAL%20Ajuste%20set16.pdf>.
4. Macedo TR, Rocha PK, Tomazoni A, Souza S, Anders JC, Davis K. Cultura de segurança do paciente na perspectiva da equipe de enfermagem de emergências pediátricas. *Rev Esc Enferm USP*. 2016;50(5):756-762. doi: <http://dx.doi.org/10.1590/s0080-623420160000600007>.

5. Livinalli, A. Erros de medicação em oncologia. *Rev Onco.* 2012;2(10):22-27. [acesso 2017 Ago 30]. Disponível em: <http://revistaonco.com.br/wp-content/uploads/2012/03farmacia.pdf>.
6. Rodrigues R, editor. *Ordem de infusão de medicamentos antineoplásicos: sistematização de informações para auxiliar a discussão e criação de protocolos assistenciais.* São Paulo: Atheneu; 2015.
7. Goldspiel B, Hoffman JM, Griffith NL, Goodin S, DeChristoforo R, Montello CM, et al. ASHP guidelines on preventing medication errors with chemotherapy and biotherapy. *Am J Health Syst Pharm.* 2015;72(8):e6-e35. doi: <https://doi.org/10.2146/sp150001>.
8. Neuss MN, Polovich M, McNiff K, Esper P, Gilmore TR, LeFebvre KB, et al. 2013 Updated American Society of Clinical Oncology/Oncology Nursing Society Chemotherapy Administration Safety Standards Including Standards for the Safe Administration and Management of Oral Chemotherapy. *J Oncol Pract.* 2013 Mar;9(2 Suppl):5s-13s. doi: <https://doi.org/10.1200/JOP.2013.000874>.
9. Mendes W, Martins M, Rozenfeld S, Travassos C. The assessment of adverse events in hospitals in Brazil. *Int J Qual Health Care.* 2009;21(4):279-84. doi: <https://doi.org/10.1093/intqhc/mzp022>.
10. Bonassa EMA, Gato MIR. *Terapêutica oncológica para enfermeiros e farmacêuticos.* 4. ed. São Paulo: Atheneu; 2012.
11. Bardin L. Análise de conteúdo. Edições 70. [Internet] São Paulo: Edições 70; 2011 [acessado 2017 Ago 20]. 229 p. Disponível em: <http://pt.slideshare.net/alasiasantos/analise-de-conteudo-laurence-bardin>.
12. Conselho Federal de Enfermagem. Resolução COFEN N° 0545/2017 [Internet]. Brasília: COFEN; 2017 [acesso 2018 Mai 23]. Disponível em: http://www.cofen.gov.br/resolucao-cofen-no-05452017_52030.html.
13. Matos IB, Toassi RFC, Oliveira MC. Profissões e ocupações de saúde e o processo de feminização: tendências e implicações. *Athenea Digital.* 2013;13(2):239-44. doi: <https://doi.org/10.5565/rev/athenead/v13n2.1119>.
14. Costa EC. *Segurança na administração de medicamentos antineoplásicos: conhecimentos e ações de profissionais de enfermagem [dissertação].* Goiânia: Universidade Federal de Goiás, Faculdade de Enfermagem; 2012.
15. Correia JN, Albach LSP, Albach CA. Extravasamento de quimioterápicos: conhecimentos da equipe de enfermagem. *Ciênc. Saúde.* 2011;4(1):22-31. doi: <http://dx.doi.org/10.15448/1983-652X.2011.1.9151>.
16. Lima IS, Clementino FS, Miranda FAN, Sousa CSM, Brandão ICA, Brasil SKD. Equipe de enfermagem: conhecimentos acerca do manuseio de drogas antineoplásicas. *Rev Enferm.* 2011;19(1):40-5.
17. Ribeiro TS, Santos VO. Segurança do paciente em quimioterapia. *Rev Bras Cancerol.* 2015; 61(2):145-153.
18. Bartlett DJ, Childs DS, Breitkopf CR, Grudem ME, Mitchell JL, Looker SA, et al. Chemotherapy acute infusion reactions: a qualitative report of the perspectives of patients with cancer. *Am J Hosp Palliat Care.* 2018;35(11):1384-1389. doi: <https://doi.org/10.1177/1049909118773995>.
19. Wolf ZR. Strategies to reduce patient harm from infusion-Associated Medication Errors: a scoping review. *J Infus Nurs.* 2018 Jan-Feb; 36(1):58-65. doi: <https://doi.org/10.1097/NAN.0000000000000263>. Cited in: PubMed; PMID 29293199.
20. Conselho Federal de Enfermagem. Resolução COFEN N° 0569/2018 [Internet]. Brasília: COFEN; 2018 [acesso 2018 Mai 29]. Disponível em: <http://www.cofen.gov.br/wp-content/uploads/2018/02/Resolu%C3%A7%C3%A3o-569-2018.pdf>.
21. Senna MH, Silva CC, Gelbcke FL, Anders JC, Mesquita MPL. A segurança do trabalhador de enfermagem na administração de quimioterápicos antineoplásicos por via endovenosa. *Rev Enferm UERJ.* 2014;22(5):649-55. doi: <http://dx.doi.org/10.12957/reuerj.2014.15513>.
22. Canadian Association of Nurses in Oncology. Standards and competencies for cancer chemotherapy nursing practice [Internet]. Vancouver: Canadian Association of Nurses in Oncology; 2013 [cited 2018 Mai 29]. Available from: <https://archive.cancercare.on.ca/common/pages/UserFile.aspx?fileId=156524>.
23. Mohsen MM, Fareed ME. Chemotherapy safety protocol for oncology nurses: it's effect on their protective measures practices. *Int J Med Health Sci [Internet].* 2013[cited 2018 Mai 30];7(9):529-37. Available from: <https://waset.org/publications/16606/chemotherapy-safety-protocol-for-oncology-nurses-it-s-effect-on-their-protective-measures-practices>.
24. National Institute for Occupational Safety and Health; Centers for Disease Control and Prevention. Personal protective equipment for health care workers who work with hazardous drugs [Internet]. Cincinnati: National Institute for Occupational Safety and Health; 2009 [cited 2018 Mai 30]. Available from: <https://www.cdc.gov/niosh/docs/wp-solutions/2009-106/pdfs/2009-106.pdf>.
25. Ministério da Saúde (BR). *Protocolos básicos de segurança do paciente [Internet].* Brasília: Ministério da Saúde; 2013 Jul 9. Anexo 01, Protocolo para a prática de higienização das mãos em serviços de saúde; [acessado 2017 Set 25]. Disponível em: <http://portal.arquivos.saude.gov.br/images/pdf/2014/julho/03/PROTOCOLO-HIGIENE-DAS-M--OS.pdf>.
26. Crickman R. Chemotherapy safe handling: limiting nursing exposure with a hazardous drug control program. *Clin J Oncol Nurs.* 2017;21(1):73-78. doi: <http://dx.doi.org/10.1188/17.CJON.73-78>.
27. Fragilidade do paciente oncológico aumenta incidência de queda em 18%; conheça barreiras para implementar.

- Instituto Brasileiro para Segurança do Paciente [Internet]. 2017 Out 6 [acesso 2018 Jan 27]. Disponível em: <https://www.segurancadopaciente.com.br/seguranca-e-gestao/fragilidade-do-paciente-oncologico-aumenta-incidencia-de-queda-em-18-conheca-barreiras-para-implementar/>.
28. Rede Brasileira de Enfermagem e Segurança do Paciente. Estratégias para a segurança do paciente: manual para profissionais da saúde [Internet]. Porto Alegre: EDIPUCRS; 2013 [acesso 2017 Ago 31]. Disponível em: <http://biblioteca.cofen.gov.br/wp-content/uploads/2017/10/Estrat%C3%A9gias-para-seguran%C3%A7a-do-paciente-manual-para-profissionais-da-sa%C3%BAde.pdf>.
29. Ministério da Saúde (BR). Protocolos básicos de segurança do paciente [Internet]. Brasília: Ministério da Saúde; 2013 Maio 3. Anexo 01, Protocolo prevenção de quedas; [acessado 2017 Set 29]. Disponível em: http://www.saude.mt.gov.br/upload/controle-infeccoes/pasta12/protocolos_cp_n6_2013_prevencao.pdf
30. Ministério da Saúde (BR). Protocolos básicos de segurança do paciente [Internet]. Brasília: Ministério da Saúde; [2014 Jul 3]. Anexo 02, Protocolo de identificação do paciente; [acesso 2017 Set 27]. Disponível em: <http://portalarquivos.saude.gov.br/images/pdf/2014/julho/03/Protocolo---Identifica---o-do-Paciente.pdf>.
31. Gluyas H. Effective communication and teamwork promotes patient safety. *Nurs Stand*. 2015 Aug 5;29(49):50-7. doi: <http://dx.doi.org/10.7748/ns.29.49.50.e10042> Cited in: PubMed; PMID 26243123.
32. Nogueira JWS, Rodrigues MCS. Comunicação efetiva no trabalho em equipe em saúde: desafio para a segurança do paciente. *Cogitare Enferm* [Internet]. 2015 [acesso 2018 Fev 01];20(3):636-40 Disponível em: <https://revistas.ufpr.br/cogitare/article/view/40016/26245>.
33. Agência Nacional de Vigilância Sanitária. Resolução - RDC Nº 220/2004. Brasília: ANVISA; 2014. Disponível em: <https://www20.anvisa.gov.br/segurancadopaciente/index.php/legislacao/item/resolucao-rdc-n-220-de-21-de-setembro-de-2004>.
34. Ministério da Saúde (BR). Protocolos básicos de segurança do paciente [Internet]. Brasília: Ministério da Saúde; [2014 Jul 3]. Anexo 03, Protocolo de segurança na prescrição, uso e administração de medicamentos; [acesso 2017 Ago 30]. Disponível em: <http://portalarquivos.saude.gov.br/images/pdf/2014/julho/03/Protocolo-Medicamentos.pdf>.
36. Conselho Federal de Enfermagem. Guia de recomendações para registro de enfermagem no prontuário do paciente e outros documentos de enfermagem. Brasília: Cofen; 2016.
37. Conselho Regional de Enfermagem. Uso seguro de medicamentos: guia para preparo, administração e monitoramento [Internet]. São Paulo: Coren; 2017 [acesso 2018 Jan 03]. Disponível em: <http://portal.coren-sp.gov.br/sites/default/files/uso-seguro-medicamentos.pdf>.
38. Chen HC, Lu ZJ, Lee SH. Nurses' experiences in safe handling of chemotherapeutic agents: the Taiwan case. *Cancer Nurs*. 2016 Sep-Oct;39(5):E29-38. doi: 10.1097 / NCC.0000000000000314.

Recebido em 14/1/2019

Aprovado em 1/4/2019