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Elaboration and implementation of protocol of conducts in the extraction of non-chemotherapeutic medicines

Elaboración e implementación de protocolo de conductas en la extracción de medicamentos no quimioterápicos

Elaboração e implantação de protocolo de condutas no extravasamento de medicamentos não quimioterápicos

ABSTRACT

Objective: To describe the experience in the elaboration and implementation of a protocol of conducts against the overflow of non-chemotherapeutic drugs. **Method:** Descriptive research, of the type of experience report, carried out after the implantation of the Catheter Team of a Public Hospital, of a quaternary level, in the interior of the State of São Paulo, with the purpose of elaborating an assistance protocol in view of the overflow of non-medications chemotherapy. The actions were divided into four phases, ranging from the knowledge of the team, to the measurement of results. Research in recent literature was carried out to build the protocol. **Results:** The protocol was developed, reviewed and validated. It brings the main signs and symptoms that may occur, a table with vesicant medications and which compress to use, in addition to a flow chart that guides the action. **Conclusion:** New evidence-based knowledge was acquired and the skill was improved, providing more security during an overflow care.

DESCRIPTORS: Extravasation of Therapeutic and Diagnostic Materials; Nursing care; Nursing protocols; Experience report.

RESUMEN

Objetivo: Describir la experiencia en la elaboración e implementación de un protocolo de conductas contra el desbordamiento de fármacos no quimioterápicos. **Método:** Investigación descriptiva, del tipo de relato de experiencia, realizada luego de la implantación del Equipo de Catéter de un Hospital Público, de nivel cuaternario, en el interior del Estado de São Paulo, con el propósito de elaborar un protocolo de atención ante la extravasación de no medicamentos quimioterapia. Las acciones se dividieron en cuatro fases, que van desde el conocimiento del equipo, hasta la medición de resultados. Se llevó a cabo una investigación en la literatura reciente para construir el protocolo. **Resultados:** El protocolo fue desarrollado, revisado y validado. Trae los principales signos y síntomas que pueden presentarse, una tabla con medicamentos vesicantes y los que se comprimen a utilizar, además de un diagrama de flujo que guía la acción. **Conclusión:** Se adquirieron nuevos conocimientos basados en la evidencia y se mejoró la habilidad, brindando más seguridad durante una atención de desbordamiento.

DESCRIPTORES: Extravasación de Materiales Terapéuticos y de Diagnóstico; Cuidado de Enfermera; Protocolos de Enfermería; Informe de Experiencia.

RESUMO

Objetivo: Descrever a experiência na elaboração e implantação de um protocolo de condutas frente ao extravasamento de medicamentos não quimioterápicos. **Método:** Pesquisa descritiva, do tipo relato de experiência, realizada após a implantação do Time de Cateter de um Hospital Público, de nível quaternário, do interior do Estado de São Paulo, com a finalidade de elaboração de protocolo assistencial frente ao extravasamento de medicamentos não quimioterápicos. As ações foram divididas em quatro fases, que vão desde o conhecimento do time, até a mensuração dos resultados. Realizada pesquisa na literatura recente para construção do protocolo. **Resultados:** O protocolo foi elaborado, revisado e validado. Traz os principais sinais e sintomas que podem ocorrer, um quadro com as medicações vesicantes e qual a compressa utilizar, além de um fluxograma que norteia a ação. **Conclusão:** Novos conhecimentos baseados em evidência foram adquiridos e a habilidade foi melhorada, proporcionando mais segurança durante um atendimento de extravasamento.

DESCRIPTORIOS: Extravasamento de Materiais Terapéuticos e Diagnósticos; Cuidados de Enfermagem; Protocolos de Enfermagem; Relato de Experiência.

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INTRODUCTION

The subject of patient safety becomes visible after the publication of *To Err is Human*, by the Institute of Medicine, in 1999, which addressed the impact of adverse events (AE) on institutions and patients' lives. He defined that AE is all damage caused by health care, not associated with the pathology responsible for hospitalization / care.¹

The parenteral route of medication administration is commonly used in situations that require a rapid systemic response. However, there are increasing risks and iatrogenesis during its use, such as leakage.²

Medicines are classified into irritants and vesicants. The definition of infiltration and leakage is directly related to the type of medication used. Extravasation is defined as the infusion of vesicant drugs out of the blood vessel, affecting surrounding tissues, which can damage soft tissue, nerves, tendons, causing bubbles and necrosis and an intense inflammatory reaction, whereas

infiltration is related to the infusion of irritating medication, which can cause a local inflammatory reaction and is not directly toxic to tissues.^{3,4} In this article, we will only cover the overflows.

The main signs and symptoms are: redness, edema, absence of venous return, stopping the infusion, burning, burning and pain may or may not be present. However, it is possible that the patient does not present symptoms or that they are very mild.³ The incidence can reach 39% in adult patients and 70% in children. In up to 25% of cases, the morbidity resulting from extravasation is more severe than the underlying cause of hospitalization.⁴

The mechanism of tissue damage depends on several factors such as: osmolarity, pH and mechanism of action of the medication.² Medicines with a pH outside the range of 5,5 to 8,5 and those with an osmolarity greater than 600 are the most likely to cause damage. The drug's diluent can also be the cause of vascular damage, as the inactive ingredients benzyl alcohol and

propylene glycol can induce inflammatory responses and cause injury.^{2,5} It is important to state that regardless of the extravasated medication, compartment syndrome may occur, with the possibility of arterial and venous damage, which can lead to amputation of the extremity.^{6,7}

Risk factors are related to the choice of device, type of medication administered, catheter location, duration of infusion, peripheral vascular diseases, age extremes, altered mental status, lymphedema, incorrect venipuncture technique, administration of vesicant medications by peripheral venous access.⁸ The places most often involved in extravasation are the back of the hand and foot, antecubital fossa and areas with little subcutaneous tissue.⁶

There is no standard treatment for the acute phase of the injury. However, once detected, some care must be taken immediately. The infusion should be stopped and as much medication as possible should be aspirated through the lancing device. After removing the needle, the limb should be

raised to minimize edema and favor lymphatic drainage.⁸

The application of compresses should be chosen according to the extravasated

drug. Colds can reduce the inflammation and necrosis caused by most agents. It is recommended for the extravasation of all vesicants and irritants, except vasopressors.

Hot compresses should be used for extravasation of phenytoin, vasopressors and contrast media, in order to modify viscosity, increase blood flow at the site and improve drug removal. Both should be applied for 20 minutes, 3 to 4 times a day, for the first 48 to 72 hours.⁸

Pharmacological management is performed with hyaluronidase, which is an enzyme that promotes the dispersion and absorption of the infiltrated medication through the degradation of hyaluronic acid. Based on this mechanism of action, it can be indicated in the overflow of all types of medication.²

Protocols are recommendations structured in a systematic way, with the purpose of guiding decisions by health professionals and / or users regarding adequate care in specific clinical circumstances. It contains specifications of who does it and how it is done, guiding professionals in care decisions for health prevention, recovery or rehabilitation. After approval, they will be disclosed and, if the professionals are trained for their use, they will have the effect of a standard, and they are responsible for their compliance.⁹

The use of protocols contributes mainly to the qualification of care, in addition to promoting work organization, saving time, rationalizing care and adapting scientific evidence to the local reality.¹⁰

It has relevance in clinical practice and has a positive impact on care results, as long as it presents objectives linked to reliable mechanisms for evaluation and implementation, adding improvement in quality and assistance with better cost-effectiveness.¹¹

The Catheter Team, made up of six nurses, is responsible for evaluating and taking conducts for the insertion of devices in patients with difficult venous network and for guiding actions in the event of an overflow and, during case discussions, it was observed the difficulty in managing the overflow due to the knowledge gap on the topic.

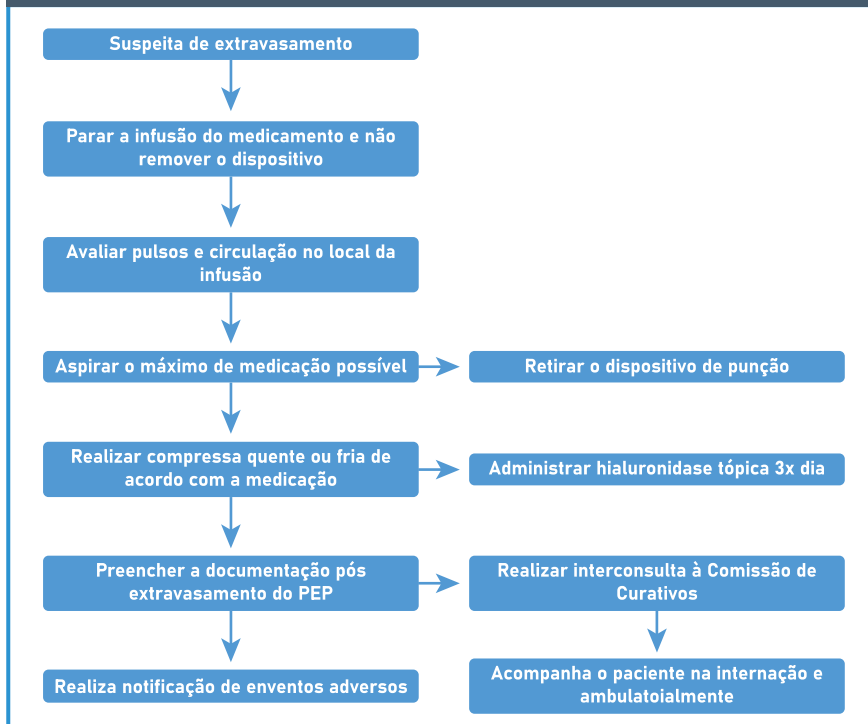
In the absence of guidelines that would lead to the best therapy to be used in the extravasation of non-chemotherapeutic drugs, there was a need to develop an evidence-based protocol that would guaran-

Table 1. Description of vesicant medications and indication of compresses^{2,5}

MEDICAMENTO	COMPRESSA
Aminofilina 24mg/ml	Fria
Amiodarona 50mg/ml	Quente
Bicarbonato de sódio 8,4%	Quente
Cafeina, citrat 20mg/ml	Fria
Cloreto de Potássio 19,1%	Quente
Cloridrato de esmolol 10mg/ml.	Fria
Contraste p/ ressonância magnet gadolino	Fria
Contraste não ionico p/tomo/hemod c/teor de 350mg	Fria
Contraste p/ resson gadoverset 330,9mg/	Fria
Diazepam 5mg/ml	Fria
Dobutamina 12,5mg/ml	Quente
Dopamina 5mg/ml	Quente
Epinefrina 1mg/ml	Quente
Fenilefrina 10mg/ml	Fria
Fenitoína 50mg/ml	Quente
Fenobarbital 100mg/ml	Fria
Gliconato de cálcio 10%	Fria
Glicose 10%	Fria
Glicose 50%	Fria
Glicose 75%	Fria
Haloperidol 5mg/ml	Fria
Haloperidol decanoato 50mg/ml	Fria
Hemitartarato de Norepinerina, 2mg/ml	Quente
Manitol 20%	Fria
Polimixina b	Fria
Prometazina 25mg/ml	Fria
Propofol 10mg/ml	Fria
Propofol 1%	Fria
Propofol 2%	Fria
Sulfato de efedrina 50mg/ml	Quente
Vancomicina 500mg	Fria
Vasopressina 20U/ml	Quente
Alprostadiol	Fria
Cloreto de cálcio	Fria
Nutrição Parenteral	Fria

Source: Protocol for Extravasation of Non-Chemotherapy Drugs. Hospital das Clínicas, Faculty of Medicine of Botucatu - UNESP, 2020.

Figure 1. Flowchart of conducts through an overflow of non-chemotherapy medications



Source: Protocol for Extravasation of Non-Chemotherapy Drugs. Hospital das Clínicas, Faculty of Medicine of Botucatu - UNESP, 2020.

tee the monitoring of this patient until the complete resolution of the lesion.

Thus, the following research question was outlined: what is the best course of action to be taken, immediately, in the event of an overflow of non-chemotherapy medication?

The extravasation of antineoplastic drugs was not addressed, since the institution that is the stage of the study, already had a protocol instituted with specific conducts, based on vast literature, and a method that does not apply to non-chemotherapeutic drugs.

METHOD

Descriptive research, of the type of experience report, carried out after the implantation of the Catheter Team of a Public Hospital, of a quaternary level, in the interior of the State of São Paulo, with the purpose of elaborating a care protocol against the extravasation of non-chemotherapy drugs.

The protocol was built according to the institution's standard model, provided by the quality office.

The actions were divided into 4 phases. In phase 1, the knowledge of the Catheter Team was carried out in view of the overflow of non-chemotherapy drugs. In phase 2, a search of the literature was carried out in the PubMed and Google Scholar databases for studies that would guide the conduct taken in the event of leakage and elaboration of the protocol. In phase 3, the nursing team will be instrumentalized in detecting and conducting the protocol developed. Phase 4, will include the survey and evaluation of the indicators performed to measure the conduct in the face of overflow, available on the Electronic Patient Record (Prontuário Eletrônico do Paciente - PEP).

It is worth mentioning that the Institution already has an Antineoplastic Extravasation Manual, with an established flow of conducts, therefore studies that dealt with this theme were excluded.

After preparation, it was reviewed by two other team members who did not participate in the preparation. Subsequently, after making the suggested changes, it was validated by the quality office and released to all employees through the electronic system where all institutional protocols are grouped.

It was established that the nurse is responsible for all the management of extravasation, as well as the prescription of the antidote and conducts according to the pre-established protocol.

EXPERIENCE REPORT

The protocol was written in a clear, concise and easy to understand manner, bringing the main signs and symptoms, in addition to a chart (1) that identifies the vesicant medications and which compress to use.

To facilitate care, a flowchart was drawn up that shows the main conducts to be used, as shown in Figure 1.

The protocol suggests that preventive measures should be adopted, such as: use of the central access passage flowchart at the time of the patient's hospitalization, assessment of the venous network for the best choice of caliber veins, perform the venous access check for flow / reflux before administer the medication, avoid venipuncture in the antecubital fossa, jugular vein, limbs that correspond to the side of the mastectomy, swollen, without sensitivity, lower limbs. Prohibits the use of a needle catheter for venipuncture.

Extravasation may also occur in a fully implanted catheter, therefore, after evaluating the area, the choice of the puncture needle should be performed. Patients are also part of the prevention process and should be encouraged to observe the main signs and symptoms such as burning and pain.

After extravasation, the nurse must complete the documentation, including information such as: date and time of occurrence, place of administration and extravasated medication, aspirated quantity (ml), device used and caliber, date of puncture,

administration technique: bolus, gravitational or infusion pump; interventions performed, care planning, signs and symptoms presented and perform the Adverse Events Notification, both available at the PEP.

DISCUSSION

Nursing care must be based on adequate evidence and standards so that there are no actions of negligence, malpractice and recklessness, which can cause harm to patients, legal and ethical problems to professionals in addition to being discredited by the society.⁹

Patient safety is related to nursing care and the use of appropriate protocols must be encouraged and also measured.

For the elaboration of a protocol, a situational diagnosis must first be made, mapping its territory and verifying the real needs of that area, considering the profile

of nursing, the user and the risks inherent to their treatment.¹² In our study, the knowledge of the nursing team regarding the overflow of non-chemotherapy drugs was observed.

The Federal Council of Nursing instituted Resolutions, which support the performance of professionals and it is recommended that the duties of nursing professionals are described in all care protocols instituted, aiming at ensuring compliance with current legislation and the organization of the work process of the Nursing team.¹³

The documentation must be appropriate, as it demonstrates the practice of nursing care, and the registration must be carried out with all stages of care. Patient follow-up should also be performed. In addition, it can assist in diagnosing the need for specific training.¹⁴ In our institution, patient follow-up is carried out

by members of the Dressing Committee, formed by nurses trained in the treatment of wounds and who can provide the best procedures in these cases.

We believe that with the elaboration of the protocol, we will establish a new strategy in the care of extravasation, with a change in our conduct and that of the entire nursing team, in the face of this event. We learn new evidence-based knowledge and improve our skills.

CONCLUSION

The elaboration of the extravasation protocol for non-chemotherapy drugs can provide safe assistance, avoiding irreparable damage that can interfere with the patient's quality of life, in addition to providing tools and directing the assessment, prescription of the antidote and conducts, to the nurse professional. ■

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