






NURSING ACTION IN THE CONTROL OF BLOODSTREAM INFECTION RELATED TO PERIPHERAL VENOUS CATHETERS

ATUAÇÃO DA ENFERMAGEM NO CONTROLE DE INFECÇÃO DA CORRENTE SANGUÍNEA RELACIONADA AOS CATETERES VENOSOS PERIFÉRICOS

ACTUACIÓN DE ENFERMERÍA SIN CONTROL DE LA INFECCIÓN DE CORRIENTE SANGUÍNEA RELACIONADA CON CATÉTERES VENOSOS PERIFÉRICOS

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ABSTRACT

Objective: identify the control of bloodstream infection through the inspection of peripheral venous catheters of patients admitted to the Internal Medicine Clinic of a federal hospital in the city of Rio de Janeiro. **Method:** this is a retrospective descriptive documental study with a quantitative approach. The data were collected by means of a documental analysis of a bundle, arranged in an Excel® spreadsheet and later submitted to simple descriptive statistical analysis. **Results:** it is suggested, by the data obtained in the study, that Nursing professionals should be trained for alignments in the control and maintenance of peripheral venous accesses aiming at the prevention of bloodstream infection. **Conclusion:** thus become the regular activities developed by the Permanent Education in service primordial in the training of health professionals, providing a reflection on the knowledge and care practices. It also contributes, through the emphasis on the creation of institutional protocols, to the relevance of good practice measures aimed at the use of peripheral venous access.

Descriptors: Catheter Related Infections; Hospital Infection; Nursing Care; Nursing Team.

RESUMO

Objetivo: identificar o controle da infecção da corrente sanguínea por meio da inspeção dos cateteres venosos periféricos dos pacientes internados na Clínica Médica de um hospital federal do município do Rio de Janeiro. **Método:** trata-se de um estudo de natureza descritiva documental, retrospectivo, com abordagem quantitativa. Coletaram-se os dados por meio de uma análise documental de um

bundle, dispondo-os em uma planilha tipo Excel® para, posteriormente, submetê-los à análise estatística descritiva simples. **Resultados:** sugere-se, pelos dados obtidos no estudo, que os profissionais de Enfermagem devem ser capacitados para alinhamentos no controle e na manutenção dos acessos venosos periféricos visando à prevenção da infecção da corrente sanguínea. **Conclusão:** tornam-se, desse modo, as atividades regulares desenvolvidas pela Educação Permanente em serviço primordiais na capacitação dos profissionais de saúde, proporcionando uma reflexão sobre os conhecimentos e as práticas assistenciais. Contribui-se, além disso, por meio da ênfase à criação de protocolos institucionais, para a relevância das medidas de boas práticas voltadas ao uso do acesso venoso periférico. **Descritores:** Infecções Relacionadas a Cateter; Infecção Hospitalar; Cuidados de Enfermagem; Equipe de Enfermagem.

RESUMEN

Objetivo: identificar el control de la infección de la corriente sanguínea mediante la inspección de catéteres venosos periféricos en pacientes ingresados en la Clínica Médica de un hospital federal de la ciudad de Río de Janeiro. **Método:** se trata de un estudio naturaleza descriptiva, documental, retrospectiva con enfoque cuantitativo. Los datos fueron recolectados a través de un análisis documental de *bundle*, colocándolos en una hoja de cálculo tipo Excel® para luego someterlos a un análisis estadístico descriptivo simple. **Resultados:** se sugiere, con base en los datos obtenidos en el estudio, que los profesionales de Enfermería sean capacitados en alineaciones en el control y mantenimiento del acceso venoso periférico, con el objetivo de prevenir la infección de la corriente sanguínea. **Conclusión:** de esta manera, las actividades regulares desarrolladas por la Educación Continuada en servicio se vuelven primordiales en la formación de los profesionales de la salud, aportando una reflexión sobre los conocimientos y las prácticas asistenciales. Además, a través del énfasis en la creación de protocolos institucionales, contribuye a la relevancia de las medidas de buenas prácticas dirigidas al uso del acceso venoso periférico.

Descriptores: Infecciones Relacionadas Con el Catéter; Infección Hospitalaria; Cuidado de Enfermería; Equipo de Enfermería.

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INTRODUCTION

Peripheral venous intravascular devices are routinely used in the hospital environment, especially by the nursing staff, with the purpose of administering fluids, drugs, blood components and their components, among others, enabling an immediate effect on the client's therapy¹.

The peripheral venous access, despite its widespread use, is a risk to Health Care-Related Infections (HCRIs), especially Primary Bloodstream Infections (PBSIs), when not handled properly². HCRIs consist of a circumstance, of local or systemic proportion, resulting from an adverse reaction, due to the action of an infectious agent or its toxin, which presents itself 48 hours after the hospitalization period³.

It is known that bloodstream infection, among HCRIs, is the most frequent in hospital services, especially in relation to intravascular catheters. In Brazil, *Klebsiella pneumoniae* and *Acinetobacter spp* are the main microorganisms causing this condition^{3,4}. This type of infection is correlated to significant outcomes of a harmful nature, since it prolongs the patient's hospital stay and generates high hospital costs⁴.

It is reported that, among underdeveloped countries, about 17% of the mortality rate is related to these infections⁴. In Brazil, more specifically by the Brazilian SCOPE (Surveillance and Control of Pathogens of Epidemiological Importance) study, a 40% mortality rate in cases of bloodstream infection has been raised^{2,4}.

It is revealed that, although there are not many studies that evaluate the financial impact of these infections in the national territory, the National Health Surveillance Agency (ANVISA) indicates that the cost can be from 7,906 to 100 thousand US dollars for these occurrences⁴. Faced with this reality, new recommendations for peripheral catheters have been released, with fundamental practical information regarding hand hygiene, selection of the insertion site, skin preparation, stabilization, among others, to ensure patient safety⁴. Considering these aspects and the relevance of the subject, the following question is raised: "How does the care provided by the nursing team with peripheral venous access influence the factors associated with the occurrence of PBSI?".

OBJECTIVE

To identify the control of bloodstream infection through the inspection of peripheral venous catheters of patients admitted to the Medical Clinic of a federal hospital in the city of Rio de Janeiro.

METHOD

This is a descriptive documental, retrospective study, with quantitative approach, carried out in a federal hospital in Rio de Janeiro, which is linked to the Ministry of Health, referenced in medium and high complexity care, with emphasis on oncological surgeries, pediatric and adult Hematology, Ophthalmology, Orthopedics and Otorhinolaryngology.

The study participants were adults and elderly of both sexes, with peripheral venous access, hospitalized from August to November 2018, except for clients who were absent at the time of the study due to transfer for exams or procedures, hospital discharge or death.

Data was collected using a bundle created by the CCIH of this hospital, called Vascular Access Observation.

It is observed that this document has the purpose of evaluating the presence and the conditions of the intravascular catheters of the clients admitted to the Clinical Medicine unit, especially informing the date of the insertion of the puncture, the caliber of the catheter, the aspect of the dressing, the presence of blood in the connector, the functionality of the flow and the presence of phlogistic signs in the ostium of the puncture.

The study data were identified and arranged in an Excel® spreadsheet and later submitted to simple descriptive statistical analysis, calculating the mean, median, and mode. Graphics were used for better visualization and understanding.

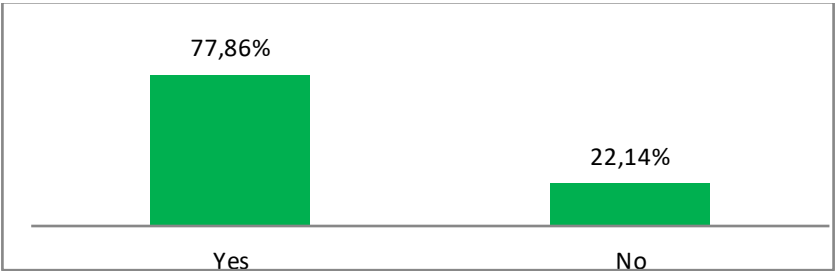
It involves the participation of human beings in this research, directly or indirectly, making it essential to ensure and respect the rights and duties of all study participants in accordance with Resolution No. 466 2012 (BRASIL, 2012).

Data collection began after approval by the Research Ethics Committee (REC) of the Federal University of the State of Rio de Janeiro (UNIRIO), as recommended by this resolution. The project was approved through Opinion number 3.692.097 (Appendix 2). The Free and Informed Consent Term was not required in this study because it referred to documentary research in which data collection was carried out with secondary sources made available by a federal hospital in the state of Rio de Janeiro.

RESULTS

It was found, in general, the evaluation of 793 vascular accesses, according to the hospital's observation tool, since there is a prevalence of peripheral venous accesses (72%) compared to central accesses (28%).

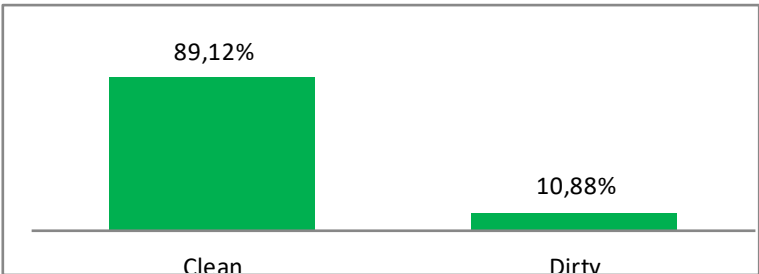
The date of the puncture recorded on the dressing is presented in the greatest number (77.85%), and the absence of this information is less recurrent (22.14%) as shown in graph 1.



Graph 1: Record on the dressing with date of peripheral puncture. Rio de Janeiro, RJ, Brasil, 2018.

Study source: Prepared by the authors.

It is noted, regarding the aspect of the dressing, the predominance of clean dressings (89.12%), since few have the presence of dirt (10.88%), as illustrated in graph 2.



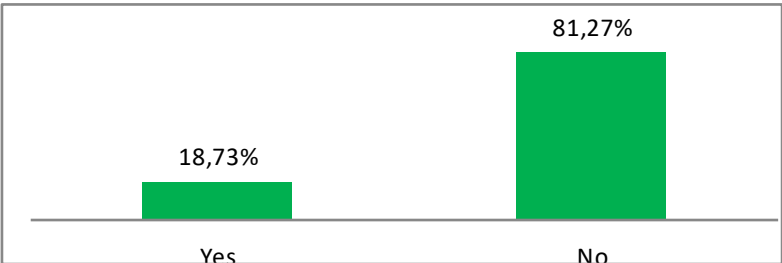
Graph 2: Dressing aspect. Rio de Janeiro, RJ, Brasil, 2018.

Study source: Prepared by the authors.

It is noticed, however, that none of the peripheral venous access dressings are performed with sterile dressing (film), therefore, 100% of the dressings used in these accesses are composed of gauze and adhesive tape (not sterile).

It is detailed, therefore, that the phlogistic signs could not be analyzed, in relation to the peripheral vascular accesses, due to the lack of visualization of the puncture site by the choice of dressings used in them.

It is stated that the presence of blood in the connectors is minimal (18.73%), which indicates the habitual use of the peripheral venous access (81.17%), either in the infusion of medications and solutions or in testing its flow and reflux (Graph 3).



Graph 3: Presence of blood in connectors. Rio de Janeiro, RJ, Brasil, 2018.

Study source: Prepared by the authors.

DISCUSSION

Peripheral venipuncture is essential in the treatment of hospitalized patients because it provides a fast access route, especially in situations classified as emergencies. It is noted, according to the results found, that this device is routinely used in the hospital environment, which generates an indicative warning regarding the disruption of skin integrity and risk factors for PBSI^{1-2,4,6,7}.

The identification of the access dressing referring to the date, time and the professional responsible for the insertion of the device is essential to control the validity of venipuncture⁶. However, in the study (Graph 1), the lack of this information was identified, suggesting a lack of knowledge about the catheter's length of stay.

It is pointed out that the sterile dressing acts as a protective barrier at the insertion site of the vascular device against dirt, humidity and contact of external microorganisms, which minimizes the risk of infection, besides fixing the catheter inside the vein, reducing displacement and, consequently, the risk of peripheral vascular trauma⁶.

It is pointed out, however, by graph 2, that the dressings of venous catheters are performed in a non-sterile way, using gauze and adhesive tape, which diverges from the new ANVISA recommendations. Furthermore, it should be noted that these dressings are susceptible to moisture, especially when performing body hygiene, requiring their exchange, which can cause the accidental exteriorization of the access⁶.

The lack of adherence to the transparent (sterile) dressing makes it impossible to visualize the insertion site and identify local inflammatory or infectious signs. They are therefore risk factors for possible complications, as well as the development of phlebitis and infection⁶.

Aspiration and flushing should be performed in order to ensure the functioning of the catheter and prevent complications, to check venous return before each infusion and, consequently, to prevent the presence of stagnant blood in the connector of the device².

The presence of blood in the device provides a medium for the culture of internal microorganisms, which may cause complications at systemic level, since the pathogens present locally may reach the bloodstream, causing infection, which, when not controlled, results in worsening of the patient and, consequently, clinical impairment. This scenario is exposed as a reflection of the careless handling of these intravascular devices during the patient's hospitalization by the nursing team⁸. Graph 3 shows the presence of blood in some connectors, indicating a failure in the handling of these devices.

It is suggested, thus, by the data obtained in the study, that Nursing professionals should be trained for alignments in the control and maintenance of peripheral venous accesses, aiming at the

prevention of bloodstream infection and other complications, which can increase the length of hospital stay and even generate greater damage to the patient's clinic.

CONCLUSION

This study allowed a deeper analysis of the factors associated with the occurrence of bloodstream infections related to the use of peripheral venous access. Thus, it became possible to identify, even though they represent a minority, that of the evaluated vascular accesses, 22.14% were undated, 10.88% had dirt on their cover and 18.17% had blood in their connectors. Taking into account these variables, it is confirmed that bloodstream infections are multifactorial, which requires constant surveillance by the team involved in the assistance.

It is warned, then, that the role of the Nursing team in the care of clients undergoing intravenous therapy, especially with the peripheral venous catheter, includes the systemic evaluation of the body's responses to the proposed care plan in order to prevent failures and promote the safety and well-being of health service users.

Despite the common use of the peripheral intravenous route in hospitals, integral attention to the handling and manipulation of the device is necessary, which requires the development of scientific and technical skills of professionals, making up a qualified health team to perform the procedures. Thus, the regular activities developed by the Permanent Education in service become primordial as a means of updating the professionals of the institution, providing reflection on the knowledge and practices developed in everyday life during the performance of assistance. It also contributes, through the emphasis on the creation of institutional protocols, to the relevance of good practice measures aimed at the use of peripheral venous access, enabling specific preventive interventions and, consequently, a positive impact on the quality of care indicators of the institution.

CONTRIBUTIONS

All authors contributed equally in the conception of the research project, data collection, analysis and discussion, as well as in the writing and critical review of the content, with intellectual contribution and approval of the final version of the study.

CONFLICTS OF INTEREST

Nothing to declare.

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