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CARE PROVIDED BY NURSING STAFF DURING THE PERIPHERAL VENIPUNCTURE PROCEDURE

CUIDADOS DISPENSADOS PELA EQUIPE DE ENFERMAGEM DURANTE O PROCEDIMENTO DE PUNÇÃO VENOSA PERIFÉRICA

CUIDADOS DISPENSADOS POR EL EQUIPO DE ENFERMERÍA DURANTE EL PROCEDIMIENTO DE PUNCIÓN VENOSA PERIFÉRICA

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ABSTRACT

Objective: to analyze the care performed by nursing professionals during the peripheral venipuncture. ***Method:*** exploratory, descriptive study of a quantitative approach, carried out in a public hospital with 92 nursing professionals. The data were collected in October and November 2012, with questionnaire, analyzed and presented in charts and tables. The study had approved the project by the Ethics Committee in research, number 114.660. ***Results:*** 89.1% always wash their hands before the procedure; use of gloves for the procedures and performed antisepsis of the skin of the patient with alcohol at 70%. The selection of the vain starting at the back of the hand was not always considered; 92.4% did not reuse the puncture device in case of failure in the procedure; all removed air from syringe/equipment before venipuncture. ***Conclusion:*** the care carried out by professionals was satisfactory, but there is need for more focus on safety equipment and in the selection of the vein. ***Descriptors:*** Peripheral Venous Catheterization; Nursing Staff; Nursing Care.

RESUMO

***Objetivo*:** analisar os cuidados realizados pelos profissionais de enfermagem durante a punção venosa periférica. ***Método*:** estudo exploratório descritivo, de abordagem quantitativa, realizado em um hospital público com 92 profissionais de enfermagem. Os dados foram coletados em outubro e novembro de 2012, com questionário, analisados e apresentados em figuras e tabelas. O estudo teve aprovado o projeto pelo Comitê de Ética em Pesquisa, parecer 114.660. ***Resultados*:** 89,1% sempre higienizavam as mãos antes do procedimento; a maioria usava luvas de procedimentos e realizava antissepsia da pele do paciente com álcool a 70%. A seleção da veia iniciando pelo dorso da mão nem sempre era considerada; 92,4% não reutilizavam o dispositivo de punção em caso de insucesso no procedimento; todos retiravam o ar da seringa/equipo antes da venopunção. ***Conclusão*:** os cuidados realizados pelos profissionais foram satisfatórios, porém, há necessidade de mais enfoque nos equipamentos de segurança e na seleção da veia. ***Descritores*:** Cateterismo Venoso Periférico; Equipe de Enfermagem; Cuidados de Enfermagem.

RESUMEN

***Objetivo*:** analizar los cuidados realizados por los profesionales de enfermería durante la punción venosa periférica. ***Método*:** estudio exploratorio descriptivo, de enfoque cuantitativo, realizado en un hospital público con 92 profesionales de enfermería. Los datos fueron recogidos en octubre y noviembre de 2012, con cuestionario, analizados y presentados en figuras y tablas. El proyecto del estudio fue aprobado por el Comité de Ética en Investigación, parecer 114.660. ***Resultados*:** 89,1% siempre higienizaban las manos antes del procedimiento; la mayoría usaba guantes de procedimientos y realizaba antisepsia de la piel del paciente con alcohol a 70%. La selección de la vena iniciando por el dorso de la mano ni siempre era considerada; 92,4% no reutilizaban el dispositivo de punción en caso de no tener suceso en el procedimiento; todos retiraban el aire de la jeringa/equipo antes de la venopunción. ***Conclusión*:** los cuidados realizados por los profesionales fueron satisfactorios, sin embargo hay necesidad de más enfoque en los equipamientos de seguridad y en la selección de la vena. ***Descriptores*:** Cateterismo Venoso Periférico; Equipo de Enfermería; Cuidados de Enfermería.

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INTRODUCTION

In the nursing staff, the nurse performs functions of manager and administrator of care, at all levels of health care, in addition to overseeing the actions of the other members of the team. Under this perspective, it is the importance of a professional to be attentive to the development of procedures by the team, including the peripheral venipuncture, seemingly simple activity, but it could bring risks to the patient when performed without proper theoretical foundation.

The peripheral venipuncture is considered one of the greatest advances in health area, constituting a routine procedure performed by the nursing staff, for the infusion of fluids, medications, blood, its components and derivatives, directly on venous network, via a peripheral venous catheter, providing immediate effect.[1]

It is very important the technical-scientific training of professionals for this procedure execution, enabling a safe and efficient access.[1] The decision on the choice of locations, caliber of devices and preventing complications to each case should be the responsibility of the nurse.

The complications of peripheral venipuncture can be classified into local and systemic. The local includes: catheter displacement, hematoma, infiltration, damage to the nerve, tendon or ligament, occlusion, phlebitis, thrombophlebitis, thrombosis, vein irritation or pain and venous spasm. Some of the systemic complications, can be: air embolism, allergic reaction, systemic infection (sepsis) and circulatory overload.[2]

Nursing professionals must show satisfactory technical and scientific knowledge about the installation procedure and maintenance of peripheral catheter. Among this care, can be cited: the correct technique, the use of personal protection equipment (PPEs), the choice of device (needle or flexible type), care concerning medication and the patient.

In the pursuit of quality of care, it is of great importance the achievement of professional updating. In the nursing staff, the nurse should always promote courses, aiming primarily to the quality of care, in addition to the reduction of risks for all involved in the procedures, that is, professionals and patients.[3]

To ensure that the procedures are well executed, it is necessary that the professionals get specific knowledge and skills, factors considered basic requirements for performing procedures efficiently, at different levels of complexity.[3]

Maximizing the success in peripheral venipuncture means scientific and technical development skills, aiming to promote a safer and quality nursing care.[4] Thus, all recommendations and scientific evidence must be followed in order to minimize the risks inherent to the patient, allowing his/her recovery in a more quiet way.

The work in the hospital environment is dynamic, stimulating and heterogeneous. However, it demands to professionals a broad knowledge about health situations, work process domain and the risks arising from it.[5] In these risks can be included those related to occupational accidents during invasive procedures, as well as the inherent risks to the patient.

Hospital practice demonstrates that nursing professionals, facing so many assignments, sometimes do not follow to the letter the basic care during the peripheral venipuncture, being important the discussion about this topic.

The study is relevant since it provides data inherent to the professionals´ behavior who are part of the nursing team, directing the realization of permanent education, as well as the development of standard operating procedures, contributing to the reduction of risks associated with peripheral puncture.

OBJECTIVES

- To analyze the care performed by nursing professionals during peripheral venipuncture;
- To check the main professional responsible for carrying out the procedure;
- To identify the materials selected for the procedure;
- To meet the care focused by the professional.

METHOD

Exploratory and descriptive study, with a quantitative approach, carried out in a public hospital located in Fortaleza-Ceará in the following sectors: emergency, Inpatient Unit and Intensive Care Unit (ICU).

Nursing professionals in those sectors composed the population of the study, with a sample consisting of 92 professionals. Inclusion criteria were: be scaled in one of these sectors; acting for at least six months in nursing; and perform the peripheral venipuncture procedure. Exclusion criteria were: be scaled casually in the sector; and

not showing interest in participating in the study.

The data were collected during October and November 2012, using a questionnaire including socio-demographic variables and a checklist, containing the important care during the peripheral venipuncture, being organized in a database in Excel Program and analyzed through descriptive statistics, with exposure in charts and tables.

The study was based on Resolution 196/96, about research involving human beings.[6] In this way, the project was approved by the Ethics Committee of the University of Fortaleza, with number 114.660. Participation in the study was voluntary, upon signing an informed consent term.

RESULTS

It was found that 83 participants were female (90.2%), mainly from 41 to 50 years old with 30 participants (32.6%), followed by 20 to 30 years old and 31 to 40 years old, with 25 participants each one (27.2%), average age of 38.4 years old; 51 (55.4%) were nursing technicians; 25 (27.2%) nursing assistants; and 16 (17.4%) nurses.

The time of completion of the undergraduate degree or technical course presented average of 9.7 years. The emergency was the most highlighted sector (40.2%), followed by inpatient unit (32.6%); 32 (34.8%) acted in the sector for less than two years, 31 (33.7%) from two to five years and 29 (31.5%) for more than five years; 50 (54.3%) mentioned never been in a training course in the area of peripheral venipuncture.

Table 1. Professional distribution according to the use of aseptic technique in performing the peripheral venipuncture procedure.Fortaleza, 2012.

Variables	n	%
Washing hands before the procedure		
Always	82	89,1
Sometimes	10	10,9
Use of procedure gloves		
Always	69	75
Sometimes	23	25
Skin antisepsis with 70% alcohol		
Always	86	93,5
Sometimes	06	6,5
Technical held in antisepsis		
From bottom to top	60	65,2
From top to bottom	21	22,8
Circular	07	7,7
Other	04	4,3
Wash hands after the procedure		
Always	85	92,4
Sometimes	06	6,5
Never	01	1,1
Total	92	100

It was found that 82 (89.1%) used to wash hands before the peripheral puncture procedure. On the other hand, ten (10.9%) has not adopted this behavior continuously. Washing hands after the procedure was performed by 85 professionals (92.4%), six (6.5%) sometimes and one (1.1%) never did it.

Always using procedures gloves for the puncture was considered by 69 professional (75%), however, 23 (25%) used them only sometimes. On the patient skin antisepsis with alcohol at 70%, 86 (93.5%) always did it. The technique of antisepsis was performed by 60 (65.2%) from bottom to top, 21 (22.8%) from top to bottom, seven (7.7%) in circular movements and four (4.3%) did not specify the technique.

The most cited materials for the procedure were: puncture device, by 92 professionals; cotton (79); alcohol (68); tourniquet (66); tape (60); extender (47); syringe with saline or distilled water (45); gloves (44) and kidney dish (38).

Table 2. Professional distribution according to care related to peripheral venous puncture procedure. Fortaleza, 2012.

Variables	n	%
Medication preparation before		
Always	60	65,2
Sometimes	21	22,8
Never	11	12
Medication administration prepared by another professional		
Always	02	2,2
Sometimes	15	16,3
Never	75	81,5
Using flash		
Always	77	83,7
Sometimes	13	14,1
Never	02	2,2
Selection of the vein starting with the back of the hand		
Always	32	34,8
Sometimes	54	58,7
Never	06	6,5
“Slapping” the vein before punching		
Always	06	6,5
Sometimes	37	40,2
Never	49	53,3
Reusing the device if failing in procedure		
Never	85	92,4
Once	01	1,1
More than once	06	6,5
Total	92	100

The results show that 60 professionals (65.2%) always prepared the medication before and 21 (22.8%) never prepared. Most of them represented by 75 professinals (81.5%), never administered medication prepared by another professional, 15 (16.3%) sometimes administered and two (2.2%) always administered it. Regarding the use of “flash” during the procedure, 77 (83.7%) always did it; 13 (14.1%) sometimes and two (2.2%) never did it.

The choice of the patient´s vein from the back of the hand was exposed by 32 professionals (34.8%). However, 54 (58.7%) not always showed that care and six (6.5%) never adopted it. The use of “slapping” on a vase, seeking the best viewing, was not observed in 49 (53.3%) of questioned professionals. However, 37 (40.2%) sometimes did it and six (6.5%) always did it. Almost all of them, 85 (92.4%), emphasized that never reused the puncture device, one (1.1%) mentioned that reused it once and six (6.5%) more than once. In the case of the removal of the air of the syringe/equipment before the puncture, 100% had that care. It is highlighted that 84 (91.3%) reported always guide the patient about the procedure.

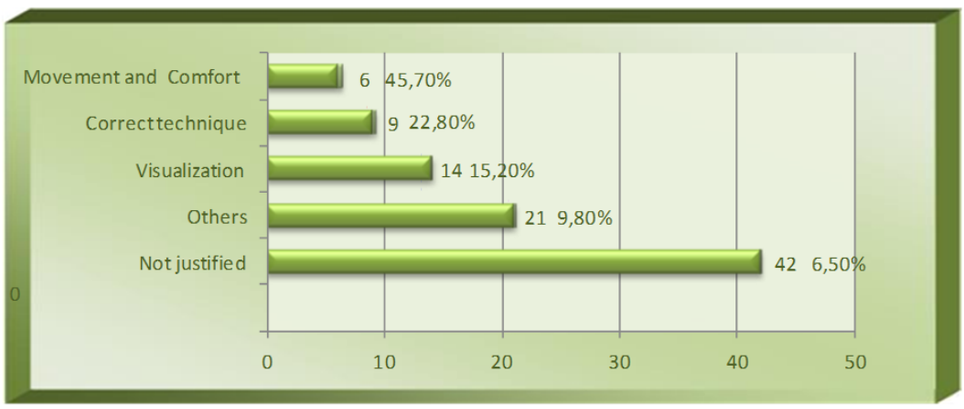

Figure 1. Distribution of the justifications of professionals for the selection of vein from the back of the hand. Fortaleza, 2012.

The main justification for selection of the vein from bottom to top, is because the ease in viewing the vase (15.2%), consisting in the correct technique (9.8%), besides the possibility of greater movement and patient comfort (6.5%). It is important to stress that 45.7% did not justify the question.

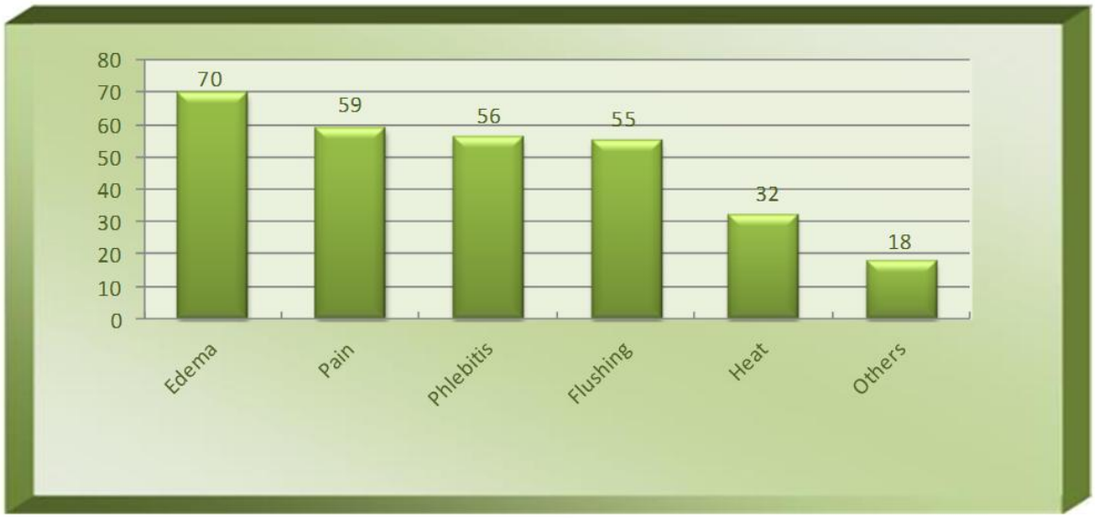

Figure 2. Distribution of answers from professionals regarding the signs to the removal of the peripheral access. Fortaleza, 2012.

The main factor considered important for removal of the peripheral access was the edema, cited by 70 participants, followed by pain (59), phlebitis (56), flushing (55) and heat (32). Other factors were cited by 18 professionals including: permanence time of access, the occurrence of pyrogenic reactions, hematoma and extravasation solutions.

DISCUSSION

In the characterization of professionals included in the study, it was found that 90.2% were female, and only 9.8% were male. Despite the current change in the profile of the professionals who make up the nursing staff, represented by the greater demand of men, the number of women in this area is still higher. Nursing has historical characteristics the fact of being exercised almost exclusively by women, being most of them female in all the categories.[7]

Regarding age group, participants were from 21 to 61 years old, with an average of 38.4 years old, with predominance of 41 to 50 years old, followed by the 20 to 30 years old and 31 to 40 years old. A research conducted with nursing professionals of a public hospital showed an average age of 41 years old, varying from 25 to 64 years old, being the age group 35-44 years old the highest incidence, with 45%.[8]

As for the professional category, there was an emphasis on nursing technicians, being more than half of the sample, followed by the nursing assistants and nurses, corroborating previous research with nursing professionals from various sectors of a hospital institution, which showed that out of 153 professionals of the sample, 50.3% were technicians, 39.94% were assistants and 9.8% were nurses.[9]

The largest contingent of middle-level education nursing professionals is associated with the degree of their duties, generally of less complexity, but with greater demand. The nurse is responsible for coordinating the team, performing activities of greater technical and scientific requirement.

Time of completion of the undergraduate degree or technical course was observed in the research, ranging from less than three to more than 15 years, being more the incident the period of 11 to 15 years, followed by less than three years and up to 15 years.

Among the sectors in which participants were scaled, the emergency was the main one, with 40.2%. Then there was the inpatient unit (32.6%) and the ICU (27.2%). The time of operation in the sector showed similarities among the participants.

With regard to professional training held by the participants in the peripheral venipuncture topic, more than half had not conducted courses before, in agreement with other research.[9]

Aspects related to the use of aseptic technique were explored in the study, considering that during the puncture procedure, it becomes essential the use of security measures for the patient and for the professional. In this context, 89.1% always wash hands before starting the procedure. However, 10.9% had no such frequent care. When questioned about washing hands after the procedure, 92.4% always did it, while 6.5% did it sometimes and 1.1% never performed it.

Data from other research about hand hygiene with all healthcare professionals in a NICU showed similarity between hygiene before and after the implementation of procedures and more than half of the professionals performed the hygiene of hands, however, still far from the ideal advocated.[10]

Concerning security measures during the procedure, the professionals were asked about the use of gloves, verifying that most of them always used them. When it comes to patient

skin antisepsis with alcohol at 70%, it was noted that 93.5% always take this measure, however 6.5% did not adopte it constantly. Various techniques were cited for the antisepsis of the area: from bottom to top (65.2%), from top to bottom (22.8%) and in circular movements (7.6%). It should be noted that 4.3% did not specify the technique used.

It is essential the use of PPEs during nursing procedures in the patient. The gloves of procedures constitute a protective barrier for health professionals. During the procedure, the professional is exposed to biological risks, but many do not use the gloves for lack of habit, lack of resources, inconvenience or loss of touch to palpation of the vein.[11]

The self-confidence, the carelessness and the rush are factors that contribute to the omission/negligence of the team in the use of PPEs. Many times, the professinals believe that some equipment hinder the development of techniques, besides being uncomfortable, occurring resistance to its use. Thus, it becomes crucial encouragement about the use, as well as the provision of adequate facilities.[11]

Infections from the administration of intramuscular medication and especially intravenously are evident due to the resident microbiota and may result in the emergence of local or systemic infections. Moreover, there is interference with the non-specific defense mechanism of the host, represented by the skin. To minimize the risk of infection during this procedure adoption of aseptic measures is required aimed at reducing the microbial load present in the skin.[12]

The ethyl alcohol 70% shows a high proven efficacy, reducing the number of microorganisms on the skin, although it has no action against sporulated forms, contributing to the reduction of infection in procedures such as administering intravenously medication.[13]

When asked about the material used for the peripheral venipuncture procedure, the professionals listed: device to puncture, cotton, alcohol, tourniquet, tape, extender, syringe with saline or distilled water, gloves and kidney dish.

It was found that 65.2% of the professionals always prepare the medication before starting the procedure and 22.8% did not adopt this behavior. About the administration of medication prepared by other professionals, most of them said never did it.

The nursing staff works in all the process of preparation and administration of medicines, which causes many errors not detected at the beginning or in the middle of the system, also increasing their responsibility, as it is the last opportunity to intercept and prevent a mistake occurred in the initial processes, becoming one of the last barriers to prevention.[14]

Therefore, it is essential that these nurses have broad vision of the medication system and its processes, offering safety and quality assurance process under their responsibility, being essential knowledge about medication, contributing to the therapy being efficiently and safely.[14]

A common practice in puncture concerns the use of “flash”, with the intention to observe if the device is inserted into the vase. Under this perspective, most of the members of the research showed that always use it.

With regard to patient´s vein selection starting at back of the hand, the results show that 34.8% always considered that care. On the other hand, 58.7% said that sometimes considered that care 6.5 % and never did it. The technique of “slapping” on a vase, seeking the best view, was not observed in 53.3% of the questioned. However, 40.2% sometimes did this technique and 6.5% always did it.

Peripheral venous access presents several disadvantages, especially associated with the difficulties for its maintenance, when there is the need for a prolonged therapy, which will require several punctures.[15] In this way, it is imperative that when selecting the vein, the professional choose initially the dorsal region of the upper limbs, by the possibility of ascending search, in case of lack of success in the procedure.

A study about patients in chemotherapy treatment demonstrated as the main local of choice for peripheral venipuncture the dorsum of the hand, with 66.7%.[16]

Regarding the re-use of the device in the presence of procedure failure, 92.4% stressed that never reused it. It should be noted that, in relation to the removal of the syringe/equipment air before venipuncture, all professionals had this precaution, constituting an essential factor for the prevention of air embolism.

When performing any of the procedures, it is essential the patient being guided, in order to obtain their cooperation, enabling greater success in the procedure. Under this perspective, almost all of the professionals always guided the patient to initiate the procedure.

When asked about the importance of the selection of the vein in an ascendant way,

45.7% did not justify it, while the rest of them justified for the following reasons: ease in viewing the vase (15.2%), correct technique (9.8%), possibility of greater movement and patient comfort (6.5%).

It is essential to note the local of the insertion device, being the back of the hand the most suitable region, because it is an area of superficial veins for easier access and the region of the upper limbs where there are several areas available to perform a lumbar puncture.[1]

An investigation conducted with pediatric patients identified as major blood vessels of peripheral catheter insertion the blood vessels of the upper limbs, with vessels located predominated in the dorsal region of the hand.[17]

In the case of the signs indicating the need for removal of the peripheral access were highlighted in descending order: edema, cited by 70 participants, pain (59), phlebitis (56), flushing (55) and heat (32). Other referred signs were: length of stay of access, occurrence of pyrogenic reactions, lack of patency, hematoma and extravasation solutions.

Previous research about peripheral infusion of chemotherapeutic drugs proved that the removal of venous device through the nursing staff was related mainly to the following signs: pain, burning, stinging, swelling, erythema and extravasation, sometimes occurring more than one association problem. However, symptoms of pain or burning, although present, may not represent extravasation, since confirmed through reflux maneuvers and local assessment.[18]

It is appropriate to point out that for the prevention of phlebitis is important to take into account some care at the time of performing the intravenous administration of medication, constituting washing hands as essential unconditional measure, the effective preparation of the skin at the local that will receive the insertion and renewal of intravenous devices.

CONCLUSION

Venous access is an indispensable device to patients in emergency or situation requiring immediate attention to the resolution of problems arising from diseases that affect the normal functioning of the body and may be representing the central or peripheral access.

The nursing staff is the main executor of the peripheral venipuncture, reasoned knowledge being necessary and indispensable care-conscious during the procedure. In this study the main responsible for carrying out the procedure were middle-level education professionals, mainly nursing technicians.

For the execution of the procedure some materials are necessary, having been mentioned: device to puncture, cotton, alcohol, tourniquet, tape, extender, syringe with saline, gloves and kidney dish.

The data obtained in nursing care during the peripheral venipuncture allow concluding that the global performance of the professionals was satisfactory, but there is a need for greater focus on certain aspects, which are essential for the reduction of risks to the patient and the professional. Among these aspects, there are using IPEs, highlighting the glove of procedures once they have been identified professionals who did not have the habit of using it. Another point that deserves attention is the choice of the vein to be punctured, which must be started from the back of the hand, which was not evidenced by most participants.

Some signs displayed at the local of the venipuncture or referred by the patient require its removal, being cited by participants: edema, pain, redness, warmth, phlebitis and, even the permanence of the access, occurrence of pyrogenic reactions, lack of patency, hematoma and extravasation solutions.

The practice of venipuncture is apparently simple. However, it requires a lot of care, seeking the quality of professional performance. Thereby, it is necessary to intensify educational activities that promote the upgrade in order to form a qualified health team for carrying out the procedures.

Given the importance of the peripheral venipuncture procedure as a nursing staff task, it is suggested the development of further research about this subject, in order to assist the professionals in the implementation of new technologies and the improvement of existing techniques, with the primary goal of preventing errors, always aiming at professional and patient safety.

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