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ORIGINAL ARTICLE

NURSES ON KNOWLEDGE VASOACTIVE DRUGS USED IN CRITICAL PATIENTS CONHECIMENTO DO ENFERMEIRO SOBRE AS DROGAS VASOATIVAS UTILIZADAS EM PACIENTES CRÍTICOS CONOCIMIENTO DEL ENFERMERO SOBRE LAS DROGAS VASOACTIVAS UTILIZADAS EN PACIENTES CRÍTICOS

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ABSTRACT

Objective: to analyze the nurses' knowledge about the specific handling of vasoactive drugs in critically ill patients. **Method:** exploratory and descriptive study with a quantitative approach, performed with 80 professionals in emergency and adult intensive care units of a public hospital in Fortaleza/CE. Data collected was from April to May 2013, organized in Excel and displayed in tables and figures. **Results:** most nurses were female (91.3%), predominantly aged 21 to 31 years old (60%). Regarding knowledge about the concept of vasoactive drugs, 42.5% answered this question satisfactorily. About the indications for use of these drugs, participants particularly emphasized the control of blood pressure (30%). The main care cited were: patient monitoring, care in the preparation and administration. **Conclusion:** gaps have been identified related to the concept and the main indications of these drugs by the nurses. **Descriptors:** Knowledge; Catecholamines; Emergency Health Services; Intensive Care Units.

RESUMO

Objetivo: analisar o conhecimento do enfermeiro sobre as especificidades no manuseio das drogas vasoativas em pacientes críticos. **Método:** estudo exploratório e descritivo, de abordagem quantitativa, realizado com 80 profissionais na emergência e nas Unidades de Terapia Intensiva adulta de um hospital público em Fortaleza/CE. Os dados coletados de abril a maio de 2013 foram organizados no Excel e expostos em tabelas e figuras. **Resultados:** a grande maioria dos enfermeiros era do sexo feminino (91,3%), predominando a faixa etária dos 21 aos 31 anos (60%). Quanto ao conhecimento acerca do conceito de drogas vasoativas, 42,5% responderam a esse questionamento de forma satisfatória. Sobre as indicações para o uso dessas drogas, os participantes destacaram principalmente o controle da pressão arterial (30%). Os principais cuidados citados foram: monitorização do paciente, cuidados no preparo e administração. **Conclusão:** foram identificadas lacunas relacionadas ao conceito e às principais indicações dessas drogas pelos enfermeiros. **Descritores:** Conhecimento; Catecolaminas; Serviços de Saúde de Emergência; Unidades de Terapia Intensiva.

RESUMEN

Objetivo: analizar el conocimiento del enfermero sobre las especificidades en el manejo de las drogas vasoactivas en pacientes críticos. **Método:** estudio exploratorio y descriptivo, de enfoque cuantitativo, realizado con 80 profesionales en la emergencia y en las unidades de terapia intensiva adulta de un hospital público en Fortaleza/CE. Los datos recogidos de abril a mayo de 2013, fueron organizados en Excel y expuestos en cuadros y figuras. **Resultados:** la gran mayoría de los enfermeros era del sexo femenino (91,3%), predominando el grupo de 21 a los 31 años (60%). Sobre el conocimiento acerca del concepto de drogas vasoactivas, 42,5% respondieron a ese cuestionamiento de forma satisfactoria. Sobre las indicaciones para el uso de esas drogas, los participantes destacaron principalmente el control de la presión arterial (30%). Los principales cuidados citados fueron: monitoreo del paciente, cuidados en el preparo y administración. **Conclusión:** fueron identificadas lagunas relacionadas al concepto y a las principales indicaciones de esas drogas por los enfermeros. **Descriptor:** Conocimiento; Catecolaminas; Servicios de Salud de Emergencia; Unidades de Cuidados Intensivos.

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INTRODUCTION

Vasoactive drugs (VAD) can be cited among the therapeutic modalities used in critically ill patients. These drugs are administered in all forms of shock to enhance hemodynamic stability of the patient when the water treatment alone cannot maintain the adequate average blood pressure.¹

The VAD acts on cells from the intravascular lumen, when they come into interaction with different receptors to produce a specific effect. Considering the action of these drugs associated with its dose and also to recipients and circulation and receiving phenomena the proper management of the dose is critical because an effect is associated with the dose.²

The insertion of vasoactive agents during the treatment of patients with serious disorders perfusions aims to correct cardiovascular changes to restore the supply of oxygen and nutrients to tissues, rebalancing the metabolic demands.³

When there is a deficient oxygen perfusion in organs and tissues, the consequence is a disorder in the functioning of the body, which may cause a malfunction and subsequently failure of the vital organs, as well as disturbances in the acid-base balance, with clinic repercussions in the patient's picture.

Given the frequent use of VAD in critically ill patients, it is essential the knowledge about its pharmacological properties by the nursing staff, especially the nurse, because he is the professional responsible for coordinating the nursing team, having the competence of identification of complications related to the use of these drugs.

The safety of patients during the hospitalization has received increasing attention from nurses in the search for assistance to ensure maximum quality and minimum risk. Concerning the administration of medication errors, they occur during any stage of this process, it is not only undesirable for the service quality, as being harmful to the patient, the multidisciplinary team and the hospital.⁴

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By represent specific drugs and diversified actions in patients, the VADs require actual knowledge by the person who will handle them, since any failure can result in serious complications, rather than the hemodynamic improvement of the patient. Some faults can occur during handling of the VAD, an association with limited knowledge by those who manipulate them.

The approach on this subject is still limited, showing the interest in the study since the complexity regarding the use of vasoactive drugs in critically ill patients involves a free harm nursing care to patients.

The study aims to explore and describe the importance of the nurse as a coordinator of the nursing staff in handling the VAD, and contribute to the clarification of doubts by the professional, and encourage him to seek more knowledge related to the theme, resulting in the quality of care provided to hospitalized patients in a critical care unit.

OBJECTIVES

- To analyze the nurse's knowledge about the specific handling of vasoactive drugs (VAD) in critically ill patients;
- To identify the main care provided by nurses during the preparation and administration of these drugs;
- To know the difficulties of nurses in the preparation, administration, and stability of VAD.

METHOD

Descriptive and exploratory study with a quantitative approach, performed in an emergency room and adult Intensive Care Units (ICU), inserted in a public hospital of high complexity, located in Fortaleza, Ceará.

The population was represented by all the nurses of these units. The following inclusion criteria were used: be part of the nurses' team on the units; to develop supportive care activities with the patient, and to have at least six months of higher education. The exclusion criteria established were: to be away from their duties in the units, because of vacation or leave.

These sectors were chosen because they constantly receive severe ill patients, most of them using VAD. It is worth noting that, handling and administration of these drugs in the sectors of the target institution in the study are part of the nurse's role.

The number of professionals inserted in the study was defined according to the data collection period, that is, all the nurses interviewed at the time of collection, and

sample selection for convenience. Thus, there were 80 nurses in the study, 41 (51.25%) of the ICU and 39 (48.75%) of the emergency room.

Data were collected from April to May 2013, using a questionnaire containing demographic data and data related to the knowledge of professionals about the appropriate care when handling the VAD, developed based on the literature inherent to the theme.

It should be emphasized that the professionals answered the instrument in the workplace, without time limit, not having been allowed even to take it elsewhere, with the subsequent return.

The results were compiled into a database in Excel program and statistically analyzed, focusing on the absolute and relative frequency, and displayed in tables and figures.

The project was approved by the Ethics Committee in Research of the University of Fortaleza, following the principles contained in Resolution 196/96 (repealed by 466/12),

which recommends standards for research involving human beings, with opinion N° 258.252.5

RESULTS

Most of the survey participants (91.3%) were female; the age was from 21 to over 54 years old, with 60% in the range of 21 to 31 years old, followed by the age group of 32-42 years old (22.5%).

The time of completion of the undergraduate nursing course was raised in the researching, noting that more than half (51.25%) had completed the course in a period of fewer than three years and 35% over a period of three to six years.

Another aspect analyzed was whether the participant had another job in the area, being proven that 65% developed activities focused only in the institution of the research. On the other hand, 35% also worked in another institution in the following areas: emergency, hospital infection control committee, internal medicine, transplantation and preventive medicine.

Table 1. Distribution of the nurses according to the concept of VAD and as the main use situations. Fortaleza, 2013.

Variables	n	%
Concept		
Satisfactory	26	32.5
Partially satisfactory	34	42.5
Unsatisfactory	20	25.0
Main use situations		
BP control	24	30.0
Cardiac dysfunction + BP control	21	26.25
Cardiac dysfunction	14	17.5
Unknown	21	26.25
Total	80	100

When participants were asked about the concept of VAD, 32.5% answered satisfactorily, 42.5% partially satisfactory and 25% could not respond appropriately. The main situations cited that indicate the use of these drugs were: control of blood pressure

(BP), with 30%; cardiac dysfunction associated with BP control (26.25%); and isolated cardiac dysfunction (17.5%). It is worth noting that 26.5% did not know the situations for using VAD.

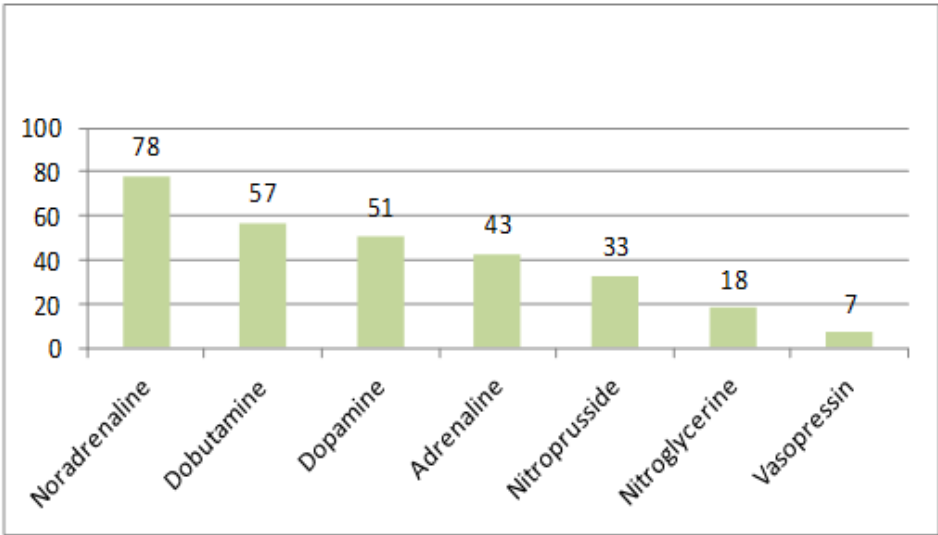


Figure 1. Distribution of most cited VADs by nurses. Fortaleza, 2013.

Regarding the main VAD, noradrenaline was highlighted, cited by 78 participants. Then, it has dobutamine, reported by 57; dopamine (51); adrenaline (43); sodium nitroprusside (33); and nitroglycerine (18). Vasopressin was less common drug cited by only seven participants.

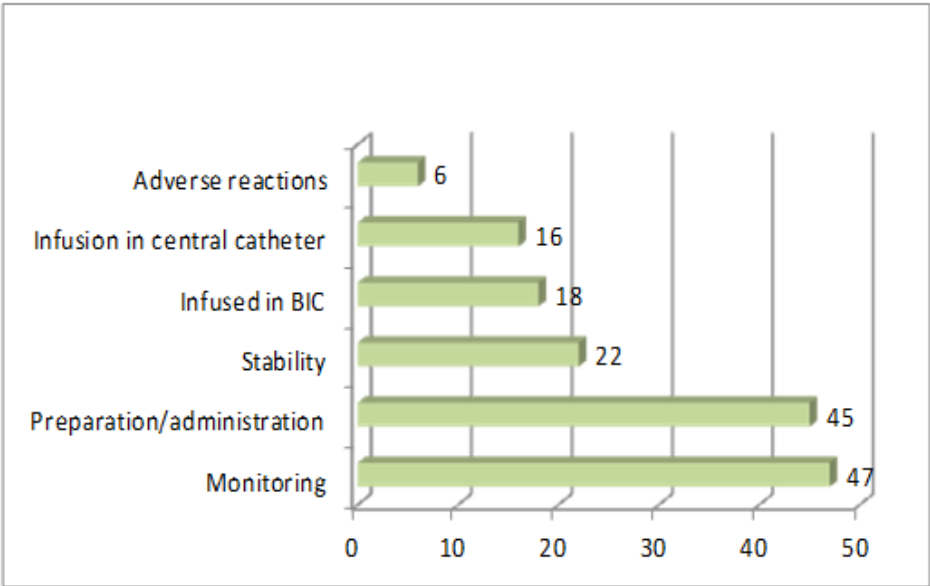


Figure 2. Distribution of the main care associated with VAD cited by nurses. Fortaleza, 2013.

Different types of care related to VAD were reported, highlighting patient monitoring and care for the preparation and administration, reported respectively by 47 and 45 participants. The stability after preparation was also an aspect seen as necessary in handling these drugs, reported by 22 nurses.

The installation of VAD infusion pump (BIC) should be considered an essential care by the opinion of 18 participants, as well as an infusion in central venous catheter (CVC), observed in 16 reports. The care related to adverse reactions were cited by only six nurses.

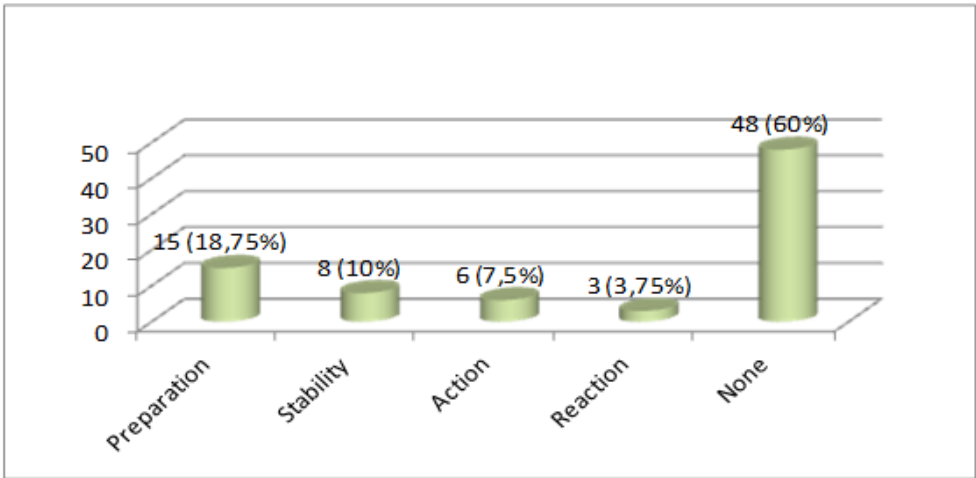


Figure 3-Distribution of the nurses according to the difficulties on the VAD. Fortaleza, 2013.

As for the difficulties associated with the handling of drugs, 60% reported not having. However, 40% demonstrated difficulties: preparation (18.75%), drug stability (10%); drug action (7.5%); and possible adverse reactions associated with VAD (3.75%).

DISCUSSION

Regarding gender, it was observed that the most nurses were female (91.3%). Because of cultural constructions that link care to women assignments, it is possible to see the existing social representations of the professional nurse in the health context, justifying the

predominance of the female figure in this profession.⁶

The age ranged from 21 to 54 years old, 60% were 21-31 years old, which directly reflected in other factor analyzed in the study that is the time of completion of the undergraduate nursing course, finding that more than half (51.25%) had completed the course in a period less than three years.

Previous research conducted with nursing professionals who work with critically ill patients found a predominance of the age group under 40 years old, corresponding to the profile expected for this type of area

because young people are encouraged early in their careers to care for these patients.⁷⁻⁸

Although the knowledge usually is associated with professional practice time in a sector, it is not ensured that the professional with experience develop their activities based on scientific knowledge because the motivation for the pursuit of knowledge is essential.

In the current reality, sometimes the nurse ends up facing certain activities as disconnected from the technical and scientific knowledge, being, in his view, easy to perform, such as the administration of medications.⁹

Although the professionals involved in the study have little training time, it does not mean, necessarily, that they do not have knowledge. That is, regardless the training time, the nurse must have knowledge and skills about nursing care and all assignments are up to them.

A nurse profile that requires agility and assertive, creative, innovative decisions is required, adding economic value to the institution and social value to the individual, seeking knowledge and new skills to organize the work and integrated professional attitudes.¹⁰ In this context, it is essential to carry out improvement courses in the acting area, seeking to improve the care provided to patients, as well as the growth of the nursing staff in the institution.

It is necessary for the nurse to take a position on the challenges faced, since there is a new era, whose trends require the future of the professional profile of a capable person to invest in his self-knowledge, that is agile and creative in problem-solving presenting a wide and varied knowledge, and skills in human relationships.¹¹

It is common for nurses having more than one job, for the need to maintain financial stability. Thus, participants were asked about it. However, it was observed that most of them were not inserted at another institution.

The data relating to the knowledge of nurses about the VAD emphasized the concept of these drugs, having a disability since less than half (42.5%) answered this question satisfactorily. It is noteworthy that 32.5% demonstrated partial knowledge and 25% poor knowledge about the concept of these drugs.

Situations that require the use of VAD include those related to the patient's disease and the complications of the disease treatments. When asked about these statements, the participants especially highlighted the BP control. Other situations

where it is necessary to use these drugs in the opinion of the participants, were the occurrence of cardiac dysfunction associated with BP control and isolated cardiac dysfunction. It should emphasize that participants were identified who could not justify situations for using VAD.

Faced with this reality found, it is observed the need for further guidance within the profession, justifying the nurse's knowledge about the actions of drugs, in general, especially if these drugs present the potential to cause complications and should be handled with responsibility and security, which requires knowledge of their actions and side effects.

Another aspect investigated in the research is the nurse's knowledge of vasoactive drugs most used in unstable patients, highlighting, noradrenaline. Then, by order of citation, there are dobutamine, dopamine, epinephrine, sodium nitroprusside, and nitroglycerin. The less mentioned drug by the nurses was vasopressin, which can be justified by the more restricted use only in situations where the patient has no response to other vasopressors.

Drugs with action in the vessels are common in the treatment of critically ill patients. The introduction of vasoactive agents in the treatment of patients with serious disorders perfusion aims to correct cardiovascular changes to restore the supply of oxygen and nutrients to tissues, rebalancing the metabolic demands.³

Currently, the catecholamines are also the most widely used drugs such as vasopressors. There are several vasopressors that may be used, including in combination in the treatment of patients with shock.¹² The choice of drug is associated with the patient's response to treatment and the presence of complications contraindication to certain drugs.

Vasopressor agents available for clinical use in Brazil include dopamine and noradrenaline. The use of these drugs in patients with decompensated heart failure is indicated in cases of shock accompanied by severe hypotension, refractory to correction of blood volume. In this situation, the initial treatment can be done with dopamine, or norepinephrine, depending on the severity of hypotension.¹³

The results demonstrate the care inherent to drugs, according to the opinion of nurses enrolled in the study. In this sense, monitoring the patient is a major factor together with care regarding the preparation and administration of these drugs, since these two

care has been cited respectively by 47 and 45 participants. The stability of the drug after preparation is a present concern and was reported by 22 nurses. Another care identified mentioned by 18 participants was the need for installation of VAD in BIC, and the infusion CVC, expressed by 16 participants. Although being a key aspect of the handling of drugs, the adverse reactions were cited only by six nurses.

The use of VAD is important for the reversal of critical situations, improving the prognosis and survival of patients. These drugs have, in general, rapid and powerful action, but its therapeutic index is low and should be administered by the hemodynamic and laboratory monitoring.¹⁴

Some aspects must be essential for the use of these drugs, including care in the preparation, but also the administration to the patient, as well as the stability of drugs. The infusion should be carried out continuously, with strict control of the flow in deep access and preference aimed at a single route. Furthermore, the observation of side effects in patients is a priority issue.

A previous study showed that the knowledge of nurses about the VAD does not occur globally, often being prioritized a particular drug over another. This reality may indicate the scientific basis of disability for the administration of catecholamines, because it is a group of very specific drugs, with similar characteristics. However, the isolated knowledge of only a drug is not justified.⁹

It is worth noting that the diverse and complex nature of administration of drugs in a totally secure way is linked to the detention of global knowledge by the professional, not being accepted dichotomized knowledge.⁹

Catecholamines are commonly used drugs for the treatment of critically ill patients. These drugs are administered in solutions and should be maintained by continuous infusion, so the concentration in its site of action remains high enough to be effective but not so high as to be toxic or low as to be ineffective.¹⁵

The care related to catecholamines should be seen as a need for nursing professionals who work with critically ill patients, as many are the deleterious effects inherent to these drugs, which can often be more serious than the benefits.

Concerning the difficulties related to drugs, most of the participants (60%) reported not having difficulties. Moreover, 40% perceived difficulties in some aspects,

highlighting mainly the preparation cited by 18,75% of the sample. Other difficulties were perceived such as the stability of the drug, the drug action and possible adverse reactions from the use of VAD.

CONCLUSION

Most participants were female, predominant age ranges 21-31 years old, time of completion of the undergraduate course in lower than three years.

As for the knowledge of nurses about the VAD, there were gaps identified related to the concept of these drugs, as well as the main situations that indicate their use. Sometimes the professional demonstrated knowledge, but not always based on a scientific basis, which ended up generating doubts in certain aspects specific to each drug.

In the case of VAD commonly used in critically ill patients, there were especially cited noradrenaline, followed by dobutamine and dopamine. The less used drug mentioned was vasopressin, maybe the less common use in the studied reality.

Another aspect investigated in the study was the essential care during the handling of these drugs. According to reports, it was noted, in general, a concern on the patient monitoring and attention during the preparation and administration of these drugs. Other care cited were: observation on the stability of the drug after preparation; administration by continuous infusion pump and deep venous catheter.

Despite the above, difficulties were identified related to the handling of the VAD by most of the participants and among those who demonstrated difficulties, they mainly included the preparation of the drug, which indicates the need for further deepening of this theme in undergraduate nursing courses, contributing to the reduction of complications for the patient and allowing greater autonomy to the professional nurse and his team.

It is expected that the study will contribute to the improvement and adoption of care associated with therapy with VAD by the nursing staff, being essential that such care is directed to the characteristics of each patient, helping the most effective recovery.

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