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GOING BEYOND DOING: THE KNOWLEDGE THAT PERMEATE THE NEONATAL CARE IN INTRAVENOUS THERAPY

IR ALÉM DO FAZER: OS SABERES QUE PERMEIAM O CUIDAR NA TERAPIA INTRAVENOSA NEONATAL

MÁS ALLÁ DE LA PRÁCTICA: LOS CONOCIMIENTOS QUE ATRAVIESAN LA ATENCIÓN EN TERAPIA INTRAVENOSA NEONATAL

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ABSTRACT

Objective: to analyze the patterns of nursing knowledge in the practice of intravenous therapy in neonatal intensive care. **Methods**: This is a descriptive, qualitative study that used as the theoretical framework the Nursing Knowledge Standards. Eleven members of the Nursing Team of a neonatal intensive care unit in southern Brazil participated in the study. Data were produced through semi-structured individual interviews and analyzed through thematic content analysis. **Results**: three thematic categories were defined: “It is a deep access” - Empirical knowledge as the basis for safe care; “It doesn't have to sting all the time.” - Aesthetic knowledge as a tool for ethical and personal care; “You have to give that baby back like a baby!” - The moral and personal knowledge, guiding the care. **Conclusion**: Ethical, aesthetic and empirical knowledge guide the practice of care in neonatal intravenous therapy.

Descriptors: Neonatal Nursing; Nursing Care; Health Knowledge, Attitudes, Practice; Catheters; Infusions, Intravenous.

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RESUMO
Objetivo: analisar os padrões do conhecimento da enfermagem na práxis da terapia intravenosa em terapia intensiva neonatal. **Métodos**: trata-se de um estudo descritivo, qualitativo, que utilizou como referencial teórico os Padrões do Conhecimento da Enfermagem. Participaram do estudo 11 integrantes da Equipe de Enfermagem, de uma unidade de terapia intensiva neonatal, no sul do Brasil. Os dados foram produzidos por meio de entrevista individual, semiestruturada, e analisados por meio de análise de conteúdo temática. **Resultados**: foram definidas três categorias temáticas: "*É um acesso profundo*" – O saber empírico como base para um cuidado seguro; "*Não tem que picar toda hora*." – O saber estético como ferramenta para o cuidado ético e pessoal; "*Tem que devolver aquele nenê como um nenê*!" – O saber moral e pessoal, norteando o cuidado. **Conclusão**: os conhecimentos éticos, estéticos e empíricos orientam a práxis do cuidado na terapia intravenosa neonatal.
Descritores: Enfermagem Neonatal; Cuidado de Enfermagem; Conhecimentos, Atitudes e Prática em Saúde; Cateteres; Infusões Intravenosas.

RESUMEN
Objetivo: analizar los patrones de conocimiento de los enfermeros en la praxis de la terapia intravenosa en terapia intensiva neonatal. **Métodos:** se trata de un estudio descriptivo, cualitativo, que utilizó como marco teórico los Estándares de Conocimiento en Enfermería. En el estudio participaron once miembros del Equipo de Enfermería de una unidad de terapia intensiva neonatal en el sur de Brasil. Los datos se obtuvieron por medio de entrevistas individuales semiestructuradas y se analizaron mediante análisis de contenido temático. **Resultados:** se definieron tres categorías temáticas: "Es un acceso profundo" - Conocimiento empírico como base para una atención segura; "No hay que pinchar a cada rato". - Conocimiento estético como herramienta para el cuidado ético y personal; "¡Tienes que devolver a ese bebé como un bebé!" - Conocimiento moral y personal, guía de cuidados. **Conclusión:** los conocimientos éticos, estéticos y empíricos orientan la praxis del cuidado en la terapia intravenosa neonatal.
Descriptores: Enfermería Neonatal; Atención de Enfermería; Conocimientos, Actitudes y Prácticas de Salud; Catéteres; Infusiones Intravenosas.

INTRODUCTION

At the beginning of the 19th century, the care and survival of newborns (NB) was based on the view of mothers and midwives at the time, who related low birth weight to the weakness of life, the outcome in which natural selection would keep alive only the strongest children. Over the years, neonatal intensive care units (NICU) have emerged and efforts have been made in therapy and care, aiming at survival and quality of survival. The family and health professionals' experiences in the NICU are different as the family experiences the possibility of physical and identity loss and the professional works in the dialogue of care practices and family insertion.[1]

Contributing to this perspective of change, in the health care of NB and families in the NICU, nursing efforts and

praxis began to contribute directly, contributing to care humanization. In this sense, nursing care is characterized by technical and empathic knowledge, which accompany complex individual and collective processes.[2-3]

In this perspective, in the 1970s, four patterns that guide care were listed, which were classified as empirical, aesthetic, ethical and personal. The empirical pattern is understood as nursing science because it is factual, formulated discursively, it is verifiable, aiming at theoretical explanations about certain nursing subjects. The aesthetic pattern is considered as the art of nursing and is noticed from the act of caring for its subjective and expressive character. The personal pattern is the one where the human being self-recognizes as a tangle of ideas, attitudes and values, allowing the reflection on his/her life experiences and the subsequent construction of new meanings. The ethical pattern is the moral knowledge of nursing, defined by responsibility, judgment about right and wrong, whether or not it should be done, thus requiring the professional to understand and clarify the ethical principles of the profession in his/her activities.[4]

The nurse is responsible for evaluating the context of each situation, based subjectively on the perspective of knowledge patterns, aiming at better decision making.[5] In the newborn care, especially in intravenous therapy (IVT), different technologies are used to improve the care provided. Among them is the use of the peripherally inserted central catheter (PICC), which is inserted through a superficial vein of the body extremity, which, with the aid of an introducer needle, progresses to the superior or inferior vena cava, characterizing itself as central vascular access.[6-7] The use of this catheter in neonates is due to the long length of stay, easy installation and reduction of complications, when compared to the other central accesses.[6,8]

Nurses have legal autonomy and are responsible for the process of using the PICC, and use theoretical subsidies in construction that have been guiding care; however, there is still little reflection on what is done, how it is done and the repercussion for care. The necessary consolidation of a praxis reflective/reflected in the process of using this catheter, by nursing, consolidates the body of knowledge of nursing and its protagonism in IVT. Therefore, the present study aimed to analyze the patterns of nursing knowledge in the praxis of IVT in NICU.

METHOD

The present study is characterized as a descriptive study with a qualitative approach that used Carper's Patterns of Nursing Knowledge as theoretical

framework.[9] The participants of the study were 11 members of the nursing team of a NICU of a teaching hospital in southern Brazil, and were selected by means of a draw and the end of the collections occurred from the theoretical data saturation.[10]

Participants were selected using the following criteria: Nurses - professionals responsible for intravenous practice, indication, insertion, maintenance and catheter removal; Nursing technicians - professionals responsible, under the nurse's supervision, for the manipulation and maintenance of the catheter, being the first to identify potentialities and problems related to therapy. Both nurses and nursing technicians should have at least one year of experience in the NICU, the study scenario.

Data production occurred in the second half of 2014, through semi-structured interviews, recorded and later fully transcribed, under double transcription and independent review. After transcription, the corpus of the study was submitted to thematic content analysis, following the three established stages.[11] The anonymity of the subjects was preserved by alphanumeric identification using the letter N for Nurses and T for Nursing Technicians, followed by a random numerical sequence of the interviews (N1, N2, N3; T1, T2, T3...). The development of the study met the requirements of national and international ethical standards in research involving human beings, being approved by the Research Ethics Committee at the Federal University of Santa Maria under the protocol number: 13149613.3.0000.5346, with opinion number 556.415.

RESULTS

The results were presented in three categories, which obtained greater thematic recurrence and allowed knowing the conceptual knowledge that guides nursing care in neonatal intravenous therapy. The categories are: "It is a deep access" - Empirical knowledge as the basis for safe care; "There is no need for stinging all the time." - Aesthetic knowledge as a tool for ethical and personal care; "You have to return that baby like a baby!" - Moral and personal knowledge guiding the care.

"It is a deep access" - Empirical knowledge as the basis for safe care

The characteristics of the fluids in the IVT are an important knowledge for the nursing team, because it enables decision-making about the central or peripheral route to be used and the care during infusion. This knowledge was accessed, as the nursing team was questioned about their knowledge of the PICC. Thus, knowledge about the use can be perceived in the statements:

What I know is that it is a deeper central catheter (T2). *It is an access... a deep one! Central!*

It goes straight to the baby's heart, has many advantages, because in it, you can make a larger volume of infusion. You can make more concentrate, those [solutions] *of 50.0%* [glucose] (N3).

It is a peripherally inserted catheter, but it is a central catheter, can be used for medication, TPN [Total Parenteral Nutrition] solution even with those more abrasive [vesicant] *medications, which cannot be done peripherally* (T6).

Many medications that, if you use, for example, if you have a solution with 50.0% glucose, if you install in a peripheral access it will slop, which does not happen with central access (N4).

The participants demonstrate that they have empirical knowledge about what PICC is, as well as establish the characteristics of fluids it allows administering. They also point out as the main characteristics of the catheter the possibility of hyperosmolar infusions – *Abrasive* [vesicant] (N4) – among them Total Parenteral Nutrition and therapies with large outflow in central circulation.

"There is no need for stinging all the time." - Aesthetic knowledge as a tool for ethical and personal care

One of the main characteristics of intravenous therapy, with the PICC, is its possibility of long stay during treatment. This characteristic is a domain knowledge of the nursing team, which considers it as one of the main benefits of the catheter. These concepts are expressed in the statements:

I think this is the main benefit of using PICC because it reduces peripheral puncture! The manipulation, of course, decreased, for a premature baby the less you manipulate, the less you stress, exhaust him, it is better (T2). *It has numerous benefits, which the catheter brought, one of them, which may be the main, is being able to give a better quality of life to newborns, because... through safe access, we can implement intravenous therapy from the beginning of treatment. Tranquility of the team in working, and you see the quality of the baby, his quality of life, less pain, less handling, a more relaxed baby* (T4). *It is a catheter that lasts longer, but in a central access, we have more risk, risk of infection... but for my care, this issue of the durability of access is precisely important* (N4). *It avoids punctures! It avoids... Pain! With the catheter, we no longer manipulate him [newborn] so much, with so many punctures* (N5).

The statements described that the possibility of long catheter permanence guarantees *quality of life* (T4) to the patient in nursing care, as it decreases peripheral punctures. These punctures, as reported by the participants, cause pain and require manipulation of neonates who are often vulnerable due to prematurity and other characteristic conditions of this population. Thinking and acting in favor of pain reduction, from the perspective of *comfort for the baby* (N2), is an ethical care as it seeks to use the best and most appropriate therapy, and aesthetic care, since it demonstrates the uniqueness and empathy for each NB who uses IVT.

“You have to return that baby like a baby!” - Moral and personal knowledge guiding the care

As the nursing team performs an adequate interaction with the parents, making them aware of everything their child is going through, they promote comfort and safety to them. This interaction of the nursing team is perceived not only in the practice of IVT, but also in the other routines and procedures performed, as demonstrated in the statements:

Because we notice, that when they come in they notice, they look at everything, so they seem to show a question mark on the face! So I explain that it was necessary to pass a catheter, I think they have to be aware of everything that goes on in here with the baby! This here is a small tube that goes to the stomach, it is for this ... this here is a “serum”, which uses a needle, but there is a “little catheter”, it does not hurt, everything the baby has, he is using, I explain. ... the father has to know what is happening, what can happen, because it is a unit that we work with high technology, so parents need to know what is going on (N2).

When mom and dad get to a strange environment, with so many wires... the baby has an orogastric tube, I usually explain about each thing he has, it [referring to the catheter] *is in a vein, if there is already a catheter, we pass here, okay, it is “there”, it is going to stay here for days, there is no need to keep stinging* (N1).

The hospitalization of the NB in the NICU becomes a crisis-generating situation in the family, due to the strange and frightening environment where the baby and the family are, as well as the various care routines that sometimes distance the family from care. For this, there is a commitment of the team to soften this insertion, favoring dialogue and providing interaction with parents.

Another commitment that the team establishes with the family is a care based on social-political knowledge that considers the NB as a member of a social/family environment that expects his/her insertion as early as possible. The commitment to return the baby to the parents, in the “best possible way”, can be identified in the statement:

For them [parents]... *not even when we explain that it will grow again* [hair]... *sometimes the baby is in a severe condition and they are worried about the child’s hair, sometimes we had children who stayed 10 days in the NICU and left as “little monsters”, the whole head ... hairless, full of bruises... you have to return that baby as a baby* [emphasizes the word] *to the parents... they get upset, they get there, the baby is intubated, is deformed, with edema, and more hairless, without anything... full of stings, so it is complicated* (N1).

In this statement, it is possible to perceive the presence of all patterns of nursing knowledge. The ethical pattern, when the care is performed in the best possible way, since the PICC allows reducing the “scars” of peripheral therapy as much as possible. These “scars” of peripheral practice can be identified in the expressions *“the whole head... hairless, full of*

bruises ... full of stings" (N1) and are characteristics of "*little monsters*" (N1).

The knowledge that guides this practice is based on personal knowledge, as the personal experience of each nurse expresses the relationship not only between professional and patient, but also of the relationship between people. Furthermore, this statement allows unveiling the sensitivity of the nursing team in identifying difficult moments, doubts and fears, even if not expressed exclusively in a verbal way. It is in the nature of nursing the presence of this sensitive care, art care, which is established as listening and singularity are considered in care.

DISCUSSION

From a perspective of nursing knowledge patterns, the knowledge of the neonatal nursing team is constructed from ethics, aesthetics, empiricism and personality.[9] In the ethical/moral/legal questions of what should be done in the care practice, the participants establish that the PICC allows an IVT without/with less risks, when compared to peripheral therapy, thus the participants morally accept that the care provided is what should have been done, so that the treatment would not cause harm to newborns, such as infiltrations, necrosis, phlebitis.

Infiltration, which is the solution – medicine – linkage into the extra vascular space, is considered, in peripheral therapy, the main complication of intravenous treatment. The incidence of infiltration in NB with peripheral therapy is present in 69 to 75% of those who use peripheral therapy.[12] Regarding this complication associated with the use of the PICC, a study pointed out an infiltration rate of 1.3%, and the authors also highlight that the distal lumen of these catheters was allocated in a peripheral position, which favored this complication.[13-14]

Aesthetic knowledge, in this perspective, is closely linked to the concept of empathy, considered a guide for the key concept of this knowledge.[9] Empathy is the possibility of placing oneself in the other's place, it is to experience the other in oneself, requiring a deep knowledge of whom is being cared for.[9] In this context, the participants put themselves in the place of neonates once they realized, through their practices, that peripheral therapy causes stress and pain, due to their low permanence and constant need for peripheral puncture.

The long stay of the PICC, which can remain throughout the treatment, is positively confronted when compared to the time of peripheral therapy. In high-risk NB, maintaining a safe, long-lasting and non-painful peripheral venous access is one of the greatest challenges for the nursing team, due to the characteristic of the drugs administered as well as the fragility of the

venous endothelium. Furthermore, the pain and suffering caused by peripheral puncture also represent suffering and anguish for the team.[15]

Signs suggestive of pain were found in approximately 70% of preterm infants who underwent the peripheral venipuncture procedure, which corroborates the description of pain, stress and exhaustion caused by the practice.[16] Moreover, it is estimated that, within 28 days, a NB who uses two antibiotic therapy regimens may be submitted to 504 peripheral punctures. Thus, the use of the PICC is considered as an instrument for care qualification, since it contributes to improving the quality of life in the NICU, reducing peripheral punctures, stress, the management of this patient and consequently ensuring safety to the nursing team.[15]

Among the most frequent complications related to the use of central venous catheters, including the PICC, are systemic infections that present higher morbidity and mortality when compared to other sites of infection, especially in the population in question.[17] The statements of the participants corroborated, based on the knowledge of the nursing team and their practice, emphasizing that repeated peripheral punctures and excessive manipulation of the patient can also contribute to the incidence of infectious complications.

It is known that sepsis is considered the main complication of IVT and one of the main reasons for neonatal morbidity and mortality.[18] A study that compared the incidence of sepsis between groups of babies who used PICC and exclusive peripheral therapy did not find significant difference between them. Thus, to minimize the complications associated with peripheral access in the neonatal population, the early use of PICC is indicated, as an important tool to reduce the number of attempts at peripheral venipuncture and the excessive manipulation.[19]

A national study also highlighted similar characteristics in the development of peripheral IVT marks/scars in intensive neonatology. These marks are closely associated with multiple venipunctures, trichotomy of the scalp, infiltration and extravasation lesions as the main complications of this practice.[15]

In addition to reducing IVT marks, the humanization of newborn care aims at explaining/guiding the use of childcare technologies. The use of an easy-to-understand language is a strategy implemented by the nursing team, since it favors integration and guarantees the family's right to monitor the care of the child. There is growing concern about the insertion of the family as co-responsible for care in the NICU. The unexpected birth and

the impossibility of immediate insertion of the family in care contribute to the deconstruction of family identity and efforts are directed to the establishment of communication. This communication allows creating secure bonds and the possibility of dialogue.[20]

The PICC constitutes as an instrument that enables care qualification, as it prevents complications related to peripheral venipuncture, and thus a personal and aesthetic care is established, since nursing creates an empathy with the subject of care and has the sensitivity to identify the factors that concern the family in the context of neonatal hospitalization. The use of the PICC is increasing in the context of intensive neonatology, but the measures are incipient, regarding its solid implantation as a care technology and search for the minimization of damages caused by frequent use of peripheral venous accesses.[15]

The study's limitation consists of the description of practices and knowledge of a single neonatology service as well as the participation of a small number of nurses and nursing technicians. These limitations do not allow generalization; however, they allow the construction/description of specific nursing knowledge and local reflections on the practice of IVT and PICC in NICU services.

CONCLUSION

For the nursing team, there was the mastery of theoretical knowledge about what PICC is and what guides their doing in the practice of IVT. It was recognized that it is a central catheter, and that, thus, there is the possibility of hyperosmolar infusions and a safe intravenous practice. Its use contributes to safe care, without the risks of peripheral therapy, thus providing ethical care, as care is developed in the best possible way, in view of the best interests of the newborn.

The possibility of long catheter permanence provides more comfort and quality of life during hospitalization, and care is based on an aesthetic and ethical commitment, from the perspective that the minimization of peripheral punctures decreases the peripheral IVT marks that cause concern and suffering for the family in the hospitalization context.

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