PAIN IN THE NEWBORN WITHIN THE NEONATAL INTENSIVE CARE UNIT

A DOR NO RECÉM-NASCIDO NA UNIDADE DE TERAPIA INTENSIVA NEONATAL

EL DOLOR EN EL RECÉN NACIDO EN LA UNIDAD DE TERAPIA INTENSIVA NEONATAL

ABSTRACT

Objective: to identify the conducts performed by nursing technicians before the newborn with pain in a neonatal intensive care unit. Method: it is an exploratory and descriptive study conducted in a public maternity in Fortaleza/CE, Brazilian Northeast, with 25 nursing technicians. Semi-structured interview was the used instrument, and the data were processed, analyzed and discussed according to the literature. The research project was approved by the Ethics Research Committee, under the Protocol nº 74/11. Results: as an indication of pain, 20 (80%) interviewees mentioned observing the face of the newborn; 25 (100%) considered the punctures as painful procedures, highlighting the venipunctures. Regarding the prevention of pain in newborns, they reported non-nutritive suction, 18 (72%), and in the presence of pain, they mainly mentioned making contacts with nurses or physicians, 12 (48%). Conclusion: Professionals have demonstrated to understand that newborns react to pain and there is a need for preventive and extenuating interventions towards these stressors on the part of the staff.

Descriptors: Pain; Newborn; Neonatal Intensive Care Units; Nursing.

RESUMO

Objetivo: identificar as condutas realizadas pelas técnicas de enfermagem frente ao recém-nascido com dor em uma unidade de terapia intensiva neonatal. Método: estudo exploratório e descritivo realizado em uma maternidade pública de Fortaleza/CE, Nordeste do Brasil, com 25 técnicos de enfermagem. O instrumento utilizado na entrevista foi um roteiro semiestruturado e os dados foram processados, discutidos e analisados de acordo com a literatura. O projeto de pesquisa foi aprovado pelo Comitê de Ética e Pesquisa, sob o Protocolo nº 74/11. Resultados: como sinal indicativo de dor, 20 (80%) entrevistadas mencionaram observar a face do recém-nascido; 25 (100%) consideraram como procedimentos dolorosos as punções, destacando-se as venosas. Na prevenção da dor no RN, referiram: sucção não nutritiva, 18 (72%), e na presença de dor, elas mencionaram principalmente contatar enfermeira ou médico, 12 (48%). Conclusão: os profissionais demonstraram compreender que os RN reagem à dor e que há necessidade de intervenções preventivas e atenuantes desses fatores estressantes por parte da equipe.

Descritores: Dor; Recém-Nascido; Unidades de Terapia Intensiva Neonatal; Enfermagem.

RESUMEN

Objetivo: identificar las conductas realizadas por las técnicas de enfermería frente al recién nacido con dolor en una unidad de terapia intensiva neonatal. Método: estudio exploratorio descriptivo realizado en una maternidad pública de Fortaleza/CE, Nordeste de Brasil, con 25 técnicas de enfermería. El instrumento utilizado en la entrevista fue una guía semiestructurada y los datos fueron procesados, discutidos y analizados de acuerdo con la literatura. El proyecto de investigación fue aprobado por el Comité de Ética e Investigación, Protocolo nº 74/11. Resultados: como señal indicativo de dolor, 20 (80%) entrevistadas mencionaron observar el rostro del recién nacido; 25(100%) consideraron como procedimientos dolorosos las punciones, destacándose las venosas. En la prevención de la dor en el RN se destacaron: succión no nutritiva, 18 (72%) y en la presencia de dolor, ellas mencionaron principalmente contactar enfermera o médico, 12 (48%). Conclusión: las profesionales demostraron comprender que los RN reaccionan al dolor y que hay necesidad de intervenciones preventivas y atenuantes de estos factores estresantes por parte del equipo.

Descritores: Dolor; Recién nacido; Unidades de Terapia Intensiva Neonatal; Enfermería.
INTRODUCTION

Nursing care to newborns (NB) within the Neonatal Intensive Care Unit (NICU) has been evident in recent studies, because these researches configure essential interventions for the recovery of health and welfare of neonates. For many years, it was believed that a newborn was unable to sense pain, due to the immaturity of the Central Nervous System (CNS), lack of myelin sheath and deficiency in pain memory.\(^1\) Thus, newborns were subjected to several painful procedures without any measures to minimize or even assess pain.

Over the years, it was observed that pain was not exclusively dependent on the myelination process and that the newborn had all the components, especially the brain ones, necessary for the transmission of the painful stimulus.\(^2\) Nevertheless, only since the 1990s that pain began to be seen as a target of research and investigation in the care of newborns, whether terms or preterms.

Pain in newborns is considered one of the aspects of great relevance in the context of humanized care. Scientific investigations have contributed to the understanding of the occurrence of pain in neonates, as well as to the awareness of all healthcare professionals who provide direct care to this population.\(^3\) Hence it is important to adopt measures relating to the assessment and treatment of pain, through initiatives aimed at promoting holistic care and respect for newborns.\(^4\)

Pain can be defined as an unpleasant sensory and emotional experience, associated with actual or potential tissue damage, or described in terms of such damage.\(^5\) To know and understand the concept of pain is relevant, because, considering that within the NICU, according to the pathology and health status, the newborn is subjected to stressful and painful procedures, such as: intubation, venous or arterial aspiration, among others. It is estimated that newborns admitted to the Intensive Care Unit receive an amount between 50 and 150 potentially painful procedures and that premature neonates weighing less than 1000 grams suffer, on average, 500 interventions throughout their admission period within such a unit.\(^6\)

By considering that the newborn is unable to inform the location of the pain and its intensity, the nursing staff is of paramount importance, because it provides direct care to newborns in a continuous manner. Accordingly, it is necessary that the nursing professional knows how and what to observe for conducting the suitable interventions when the newborn feels some pain. The availability of methods for evaluation of pain in the newborn is the basis for its appropriate treatment.\(^7\) Pain assessment must be part of the activities of the nursing staff, since it spends more time with the patient, in addition to ensuring a humanized care, which is a patients’ right.\(^8\)

The experience of the authors in neonatal units has revealed a day-to-day with various interventions, in other words, routines that predispose the accomplishment of painful procedures, which, in most cases, was not perceived by some professionals. Accordingly, there is not uniformity in the assessment of the newborn with regard to be with pain or not. This fact has awakened the interest for the conduction of studies, because recognizing and characterizing the signal of pain must be a commitment of every team that provides care to newborns (regardless of their clinical status). Hence, this study aimed at identifying the conducts performed by nursing technicians before the newborn with pain in a neonatal intensive care unit.

METHOD

It is an exploratory and descriptive study, conducted in a neonatal intensive care unit of a public maternity reference in neonatal care, which belongs to the hospital complex of the Federal University of Ceará (UFC), located in the city of Fortaleza, Ceará State, Brazilian Northeast.

The institution at stake develops relevant health activities related to the care of newborns and serves as a training field for graduation and post-graduation students from public and private institutions in the various multiprofessional areas. It plays an important role in the health care of women and newborns, highlighting the use of technology by a humanized team, which is committed to the continuous improvement of care quality. Furthermore, it integrates network North-Northeast Perinatal Health Network, a joint initiative of the technical area of Children’s Health and Breastfeeding of the Brazilian Ministry of Health.

The NICU provides care to newborns at high risk, extremely premature, with very low birth weight or distinct pathologies. It serves patients from the obstetric service itself. It is divided into four units: two medium-risk units (with 15 beds each) and two high-risk units (one with 12 beds and one with 9 beds).

The study population consisted of 25 nursing technicians belonging to the neonatal unit. As for the inclusion criterion, we used all
nursing technicians that worked in the Neonatal Intensive Care Unit, with at least two years of experience, providing direct care to newborns and that were working during the collection period. Workers who were on strike, holidays and sick leave during the study period were excluded. The choice made by the NICU happened due to it being a unit of greater complexity and its beds are always busy; thus, we could have a bigger chance of witnessing learning experiences.

The instrument used during the semi-structured interview for making recordings was a form with objective and subjective questions, in which the researcher previously formulates the questions and records the answers found. The form was divided into two parts: the first related to the identification data of the professionals, such as age, time of completion of the technical course and length of experience in neonatology. The second part contained the following open questions: In your opinion, does the newborn feel pain? How do you perceive that the newborn is feeling pain? Does this neonatology unit have scales to measure pain? What do you consider as painful procedures for infants? What nursing care do you perform to prevent pain in newborns? What nursing care do you perform to relieve pain in newborns?

Data collection was conducted in August 2011, at the institution itself, in a reserved place, thereby contributing to the establishment of a private environment. The obtained data were accurately processed, analyzed and discussed according to the specialized literature, in order to avoid errors, confusing information or information that could harm the search results. They were presented in the form of figures, and absolute and relative frequencies in Excel spreadsheets were used. On that occasion, when it was possible, statistical measures like mean and standard deviation were calculated.

Each professional, after signing the Consent Form, received a copy. This study was approved by the Research Ethics Committee, under the Protocol nº 74/11.

**RESULTS**

In order to achieve a better understanding of the study, we outlined the profile of the professionals who participated in it, all were females. Of the 25 interviewed professionals, 12 (48%) were aged between 29 and 40 years; 8 (32%) were aged between 41 and 50 years and 5 (20%) were aged between 51 and 54 years.

As for the length of experience working in neonatology: 14 (56%) had between 11 and 20 years of experience; 8 (32%) had between 21 and 30 years and 3 (12%) had between 9 and 10 years of experience in neonatology. It is noteworthy to emphasize that 21 (84%) had only the Nursing Technician course, while 2 (8%) had a graduation course and other 2 (8%) had a post-graduation course. Figure 1 shows the distribution of the parameters used by nursing technicians to assess pain in newborns:

![Figure 1. Indicative signs for pain, according to Nursing Technicians, Fortaleza, 2011.](image)

As indicative signs for pain, they reported identifying facial expressions of newborns, 20 (80%), followed by crying, 18 (27%), irritation on the part of newborns, 15 (60%), body movements, 8 (32%), tachycardia, 5 (20%), and also hyposaturation, 3 (12%).

Regarding the procedures considered as the most painful by nursing technicians (Figure 2), they mentioned:
In procedures considered as painful, there is the emphasis on the punctures as a unanimity to all surveyed professionals, whether these punches are venous, 25 (100%), capillary, 10 (40%), arterial, 8 (32%), or lumbar, 8 (32%). Here, it should be emphasized other procedures mentioned by them, which they consider as painful, but were fewer cited, namely: introduction of the orotracheal tube (OTT), cold, excessive handling, dressing change, trichotomy and aspiration of OTTs and of airways.

When asked about the care shares provided to prevent pain in newborns, it was obtained (Figure 3):

The most reported type of care by professionals in the prevention of pain in newborns was the non-nutritive suction with gauze and breast milk or with 25% glucose: 18 (72%). The techniques also reported: wrapping the newborn, 10 (40%), performing position change, 6 (24%), conducting delicate handling, 5 (20%), and mixing the care procedures, 4 (16%). Other types of care were also cited in lesser amount, such as the promotion of humanized care and the fact of making the hospital enclosure looks like a twilight zone.

Relating to the care of newborns, when the presence of pain is detected, the following responses were obtained: contacting nurse or physician, 12 (48%), offering non-nutritive suction, 9 (36%), perform minimal handling, 9 (36%), passing topical medication in puncture locations, 8 (32%), and also snuggling and talking with the newborn, 4 (16%). Moreover, in smaller numbers, there were reports of concern with humanized care (minimum and delicate touch, producing twilight zone, carrying out position change).

**DISCUSSION**

It should be observed that all interviewees were female and had, on average, 38 years old, (SD ± 6.17). A similar study also found that 100% of the auxiliaries of a NICU were female and had an average age of 32 years. These data reveal a reality of NICUs in which there is a domain of female professionals, which characterizes a predominance of this gender in the nursing profession.

Most of them, 16 (84%), had more than 10 years of experience in the area of neonatal care, on average, 17,5 (± 6,16), which is a
result similar to that found in another study, where more than half of the study population (53.6%) had experience of more than 10 years in the care of newborns. The data reveals the existence of professionals with proven experience in caring of newborns. The majority of the professionals (84%) had the Nursing Technician course as the highest titration; only 2 (10.5%) had professional a graduation degree in addition to the technical course, and 1 (5.2%) had post-graduation degree in Nursing.

When the nursing technicians were questioned if they agreed that newborns feel pain, all confirmed that they are capable of feeling pain, including premature infants. There is evidence that neonates have the neurological capacity to realize the pain, even the preterm neonates.

A particular attention to the pain and the search for ways to reduce, or even avoiding it, might be an important step towards the improvement of the life quality of newborns admitted to the NICU, thereby seeking to provide a more humane care.

In order to conduct a proper and humanized treatment of the painful phenomenon, it is necessary that professionals having knowledge about the important aspects of pain: systematic assessment, multidimensionality, appropriate intervention, pharmacology, monitoring treatment outcomes and communication with healthcare team.

It is essential that professionals knowing how to recognize the signs that confirm the presence of pain in newborns. Therefore, for healthcare professionals in neonatology can therapeutically act in possibly painful situations, it is necessary the acquisition of instruments to “decode” the parlance of pain.

It was realized that the institution where the study was conducted does not make use of scales to measure pain. In institutions where pains in patients are routinely measured, only nurses and nursing residents make use of scales for rating pain, because these scales are included in the Nursing Care Systematization (NCS), which is a document filled only by nurses.

To quantify and qualify the pain, scales that take into account behavioral and physiological changes in the neonatal period have been used. Among the scales used to assess pain in newborns, we could mention: Neonatal Infant Pain Scale (NIPS), Neonatal Facial Coding System (NFCS) and Premature Infant Pain Profile (PIPP).

The use of pain scales at the bedside of the newborn during painful procedures might prove to be a crucial step to implement non-pharmacological measures in the service of Neonatology, since scales prove the existence of pain and, therefore, foster appropriate interventions to the newborn.

It should be highlighted the importance of having qualified professionals for the use of scales. A study that compared the pain assessment of newborns during blood sampling through two scales, in which one was applied by the nurses who performed the painful procedure, has indicated the possibility of limitation on the part of the nurses regarding the recognition of signs of pain expressed by newborns.

A study carried out in Sergipe, with 90 patients, has revealed that, despite the pain being considered the fifth vital sign, the inadequate assessment associated with treatment outside the standard of the analgesic ladder of pain remains a little explored parameter and that has few records.

Another study, performed in Paraná, with 188 nurses, reported the difficulties encountered by the team regarding the lack of records of nursing actions, in particular the difficulty of understanding the patient in relation to pain, lack of time and underestimation of pain on the part of healthcare professionals for the proper assessment of the painful phenomenon. This involves an ethical issue on the part of these professionals, because pain relief is a humanitarian aspect and a patient’s right. It is necessary having an evolution of researches in order to identify, provide and disseminate equipment and guidelines suitable to nurses.

Pain prevention is important, not only because of ethical issues, but also by the potential deleterious consequences of repeated exposure of pain to the newborn. These consequences include altered sensation, besides the behavioral and physiological changes.

In this context, the indicative signs of pain that the participants reported observing were mainly facial expressions of pain and crying. Nonetheless, irritation, excessive movements in the limbs, tachycardia and hypoxia were also identified as painful signs.

Moreover, studies conducted in Maceió, in 2009, with 15 nurses, and in São Paulo, with 32 nurses, have revealed that all of them believed that newborns feel pain and only 4.9% reported the existence of a pain protocol in the services in which they work. Facial...
expression, crying and agitation were the most prevalent responses.11,15

Changes in facial expression have been one of the most used tools in the study of the pain in the newborn, namely: protruding forehead, narrowed eyelid fissure, deepened nasolabial furrow, half-open lips, stretched mouth, trembling chin and tense tongue.20

The facial expression enables valid, sensitive and specific information with regard to the nature and intensity of the pain; as for the crying, when alone, does not provide sufficient information, since it might indicate hunger and discomfort.21

Regarding the procedures performed within the NICU, many were considered painful by the interviewees, but the most cited were: venipuncture, 25 (100%), capillary puncture, 10 (40%), arterial puncture, 8 (32%), and lumbar puncture, 8 (32%). Here, it should be emphasized other procedures mentioned by them, which they consider as painful, but were fewer cited, namely: introduction of the orotracheal tube (OTT), cold, excessive handling, dressing change, trichotomy and aspiration of OTTs and of airways.

Similar results were obtained in a study carried out in 2009, which pointed out the following painful procedures: intubation and mechanical ventilation, as well as venous and arterial punctures.11 Other research had venipuncture, intubation, aspiration, chest drain, introduction of probes and nasal CPAP as outcomes.15

A study conducted with newborns has unveiled that the aspiration of the orotracheal tube and airways and the use of nasal CPAP, considered as painful practices, can lead the newborn to present changes in its physiological parameters.22

By considering the characteristics of the clientele, newborns that need intensive care from the nursing staff, before their therapeutic needs, one can understand the reason by which the above procedures were cited. They are painful procedures, but necessary, that must be conducted in the best possible way, in an attempt to alleviate the suffering of the newborn.

The protocols of care for newborns must incorporate the principle of minimizing painful interventions as much as possible. The strategies must include assessment of pain routinely, reducing the number of procedures performed at the bedside and use of scientifically proven effective measures.23

Thus, prevention is an essential factor. When questioned about what conducts they would adopt to prevent pain in the newborn, it was obtained: non-nutritive suction with milk and gauze or 25% glucose: 18 (72%). The nursing technicians also reported: wrapping the newborn, 10 (40%), performing position change, 6 (24%), conducting delicate handling, 5 (20%), and mixing the care procedures, 4 (16%). Other types of care were also cited in lesser amount, such as the promotion of humanized care and the fact of making the hospital enclosure looks like a twilight zone.

When one cannot spare the newborn from having pain, the attempt to relieve it is very important. Currently, there are several techniques for treatment of pain, and they might be pharmacological or non-pharmacological.

The administration of glucone has been widely used as a non-pharmacological intervention for pain relief.24-5,38 Studies show that it is a therapeutic measure indicated for the conduction of minor procedures such as blood sampling, since it helps the newborn to organize itself after the painful stimulus, thereby minimizing physiological and behavioral repercussions.24,26 The procedures for pain relief increase the homeostasis and the stability of the newborn and are essential for the care and support of immature neonates, with sights make them survive the stresses.27

In relation to actions held by professionals to relieve pain, the interviewees have mentioned: contacting nurse or physician, 12 (48%), offering non-nutritive suction, 9 (36%), perform minimal handling, 9 (36%), passing topical medication in puncture locations, 8 (32%), and also snuggling and talking with the newborn, 4 (16%). Moreover, in smaller numbers, there were reports of concern with humanized care (minimum and delicate touch, producing twilight zone, carrying out position change). All kind of pain must be considered and requires a nursing intervention, being that nursing professionals are responsible for providing a care free of malpractice, negligence and recklessness. The professional cannot be absent.

There is a strand that seeks the pain relief for newborns. In the case of nurses, it should be emphasized the non-pharmacological measures, which do not require prescriptions, which facilitates their use in nursing care actions. Nursing occupies a prominent position in the assessment and intervention on the pain in newborns, because nurses work in the most painful procedures during their admission period at the NICU.18

Another study on pain has revealed that 42% of the interviewed professionals treated the neonate’s pain only with medicinal drugs,
improving the quality of the care provided to neonates.

REFERENCES


English/Portuguese
J Nurs UFPE on line., Recife, 7(11):6446-54, Nov., 2013 6453

Submission: 2012/05/23
Accepted: 2013/08/24
Publishing: 2013/11/01

Corresponding Address
Lanuza Celes Mendes
Rua Muirá, 1916 / Messejana
CEP: 60865-280 – Fortaleza (CE), Brazil