

Kangaroo Care in Pre-Term Newborns: The Perception of Neonatal Pain, its Assessment and Necessary Approaches

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Abstract

During hospitalization in the neonatal unit (NU), the newborn (NB) is continually exposed to procedures that can be considered painful and uncomfortable. The perception, assessment and management of neonatal pain are important actions for protection and prevention that must be offered to newborns who need neonatal intensive care. In a study conducted with health professionals from a NU in northeastern Brazil, through interviews with health professionals who perform procedures, it was possible to detect that the team recognizes neonatal pain, knows that the NB is able to express responses to it but confirms that they do not use all the management necessary for pain relief. International literature reports the same challenges in other services. Professionals recognized kangaroo care as an important pain protection strategy that guarantees humanized care. It was evident the need to improve the training of the healthcare teams to use continuous learning as to reinforce their theoretical principles, always remembering that skin-to-skin contact is a priority indication in this protection.

Keywords: Kangaroo Care; Preterm; Pain; Pain Assessment Scales

Introduction

Pain, its evaluation, prevention and treatment is part of one of the fundamental pillars of Humanized Care for the Newborn - Kangaroo Method. The careful discussion about its management in the Neonatal Units (NU), deserves our attention and concern, considering its central role in clinical repercussions for the newborn (NB) and in its development [1-3].

In recent years, we have observed that this concern is present in different studies that report gaps in knowledge about neonatal pain, how to evaluate it and the lack of systematization of their care routines [3-6].

We know that during hospitalization in Neonatal Intensive Care Units (NICU), neonates are submitted to several painful procedures and stressful stimulations [3,4] and that preterm infants are the most sensitive to pain and stress [2]. Their responses to these invasions are clear and support the implementation of routines to minimize their suffering and avoid harmful effects on their growth and development [1-3].

Pain is defined as a subjective, unpleasant experience with actual or potential tissue damage and has sensory, emotional, cognitive and social components [1,4-6]. By understanding its complexity and its influence in different biopsychic areas of the individual, we can estimate its importance in relation to small babies, in Neonatal Units [7,8].

Adequate attention to the responses or communications that the NB gives to its caregiver makes it possible to use neonatal pain assessment protocols. In other words, the observation of the communication patterns used by the NB allows the health teams to feel able to use the neonatal pain assessment scales or even decide on the use of management such as touching, skin-to-skin contact or suction [6,8]. However, the real action to apply interventions that help the NB in facing this situation is still weak. International literature points the same to show in a robust and incisive way information that suggests the value of the presence of this care and its repercussions [9-11].

The impacts related to invasive procedures which cause pain and stress during hospitalization go beyond the neonatal period. When exposed to painful stimuli for long periods without habituation, the child may be more sensitive to pain [2,8,9], which can also lead to hyposensitivity to physiological sensory stimuli [12] and hypersensitivity to posterior nerves stimuli, feeling the reflex pain at the puncture site for more than a year after discharge [13]. Neonates who do not receive adequate analgesia may develop greater sensitivity to pain than other children may for all life. In addition, pain control modifies metabolic stress and interferes on the survival rates of children with serious illnesses [14].

Therefore, despite not verbalizing, the newborn manifests reactions to stimuli such as those that are painful or uncomfortable, showing changes in their physiological and behavioral dynamics. When observing these reactions, the singularities and the evolutionary moment of this period of life must be considered, as well as the individuality of each NB to communicate [15].

As suggested in the Kangaroo Method technical manual, our contact and observations must allow the baby in our care to become a subject. This conduction is what will allow the true reading of their expressions. On the other hand, the guidelines mention that even procedures that seem as simple as changing diapers, weighing or even checking vital signs can result in painful stimuli if we do not take into account the level of development of the newborn while we perform them [1].

The stress experienced by the NB during hospitalization should be added to these pain experiences, especially when receiving inadequate responses to their needs. A stressful experience can trigger similar physiological responses and as harmful as those from an experience of pain. With these paradigms, we recognize that the baby is his body and his sensory experiences configure who he is. As Freud proposed in 1923 “the ego is ultimately derived from bodily sensations, chiefly those springing from the surface of the body” [16]. Therefore, it is clear why we understand that the repercussions from pain and stress experienced by newborns can be pervasive in their integral development.

Considering these particularities, the use of neonatal pain assessment scales qualifies the work in the NICU and supports the professional for better assistance [17]. It is agreed that the objective assessment of pain in newborns should include scales with several parameters to standardize the measurement of variables [18,19]. Its use represents a leap in the quality of care, ensuring the right time to act before pain and collaborating with other forms of evaluation to provide the best possible job for newborns.

This finding led us to carry out this study that seeks to understand Kangaroo care for preterm newborns in relation to the perception of neonatal pain, its assessment and necessary approaches, as well as provoking a discussion between professionals and consultants of the Kangaroo Method, in the search for possibilities of action. The main aim is to be able to map appropriate ways to encourage a care that is truly protective and that promotes development in newborns who need neonatal intensive care.

Methods

We conducted an exploratory qualitative investigation carried out in a university hospital in a city of northeastern Brazil. The Neonatal Unit had 33 beds including those from the Neonatal Intensive Care Unit (NICU), the Conventional Neonatal Intermediate Care Unit (UCINCo) and the Kangaroo Neonatal Intermediate Care Unit (UCINCa).

Participants were university-level health professionals, members of the neonatology team, who had worked in the service for over a year and who performed procedures and/or had direct physical contact with the NB: medical doctors, nurses, physiotherapists, speech therapists and occupational therapists. From the inclusion criteria, we identified 41 professionals. During the period of data collection, two doctors and a physiotherapist left the service and two nurses did not accept to participate in the research, totalling 36 interviews.

Data collection took place between December 2013 and July 2014. We conducted field observations as well as structured and semi-structured interviews.

For the structured interview, we used questionnaires with closed questions on sociodemographic aspects. The semi-structured interviews were recorded and transcribed with the interviewees' consent. They were based on a script containing open questions about professionals' knowledge and practices on neonatal pain.

The participant observation aimed to collect data about the dynamics of the NICU environment regarding the newborn's pain, seeking to understand the performance of the professionals. We carried out visits every day of the week and in all three work shifts (morning, afternoon and night), lasting two to four hours per shift totalling 28 hours. The data were recorded in a field diary.

For data analysis, we used the Content Analysis in thematic modality following the steps of pre-analysis, categorization and interpretation [20].

This research was approved by the Research Ethics Committee, CAAE: 20776213.0.0000.5086. The identities of the interviewees were coded to preserve their names. The code was assigned using the initials of the professional category (Medical doctor: MD; Nurse: NR; Physiotherapist: PT; Speech therapist: ST and Occupational Therapist: OT) followed by the number corresponding to the order of performance.

Results and Discussion

What the interviews with professionals showed

The interviews demonstrated the knowledge and practices of 36 health professionals from the same Neonatal Unit. Most of the participants were women, with university-level, graduated for more than five years and holding a *lato sensu* or *stricto sensu* postgraduate degree. They were: doctors, nurses, physiotherapists, speech therapists and occupational therapists.

Regarding neonatal pain

The professionals reported that they recognized neonatal pain as well as the advances in its management and declared that they seek to be attentive to its signs in the newborn:

- "It is more than clear. More than ever it is proven that the newborn feels pain. Not so long ago, it wasn't spoken with that much evidence, but he really feels pain. It needs to be treated, prevented, so that it does not bring complications for the baby" (NR09).
- "The NB's painful sensation is much greater than ours. This occurs because of the immaturity of the central and peripheral nervous system" (PT01).
- "Today we know that the little baby has an immature system for pain. And it has less control over this painful process" (MD12).

From the twentieth week of gestational age, the ascending nociceptive pathways become functional and the fetus is able to perceive painful stimuli [21] which is indicative that this process is present in preterm infants born from 23 to 24 weeks of gestational age. Because their inhibitory control mechanisms are still immature and have limitations in sensitivity to modulate the painful experience, newborns can perceive pain even more intensely when compared to older children or adults [7,22,23]. This shows us that the neurobiology of the neonatal pain process in preterm infants should be remembered with singular specifications for this evolutionary moment.

At various times, the participants also demonstrated they were aware of the possibility of sequelae resulting from painful experiences during neonatal hospital.

“Pain decompensates the child, affects the immune system, affects the behavioral system. It disturbs the child’s rest and, consequently, its weight gain and stability of vital signs” (NR17).

“Research shows that the issue of pain is harmful to the baby. In addition to being a nuisance, it directly affects the nervous system. It can lead to intracranial hemorrhages and a number of things during these episodes of pain” (MD06).

Responses to painful stimuli can be identified through their physiology, including tachycardia, hypertension, increased intracranial pressure, and neuroendocrine response, in addition to behavioral changes such as crying, grimacing and restlessness [23]. These responses, in turn, should make us question the possible transformations in the nature of the experience of pain and its future expression, whether in childhood or even in adulthood [7,24].

Regarding the use of pain scales

Professionals recognize that neonatal pain has historically been neglected - “In the past, I had the wrong idea that the baby did not feel pain. We know that is not true. Of course, of course, he feels a lot of pain” (MD08).

They consider important the existence of care and preventive actions that protect the newborn.

“...but he really feels pain. It needs to be treated, prevented, so that this signal does not change and cause complications for the baby” (NR09).

“What do I think is important? To prevent. Knowing that the less pain you cause the baby, the less sequelae in the future... Prevent. So try to cause as little pain as possible for them” (MD05).

In view of these considerations, which denote the existence of a very clear knowledge about the presence of neonatal pain, they consider that, despite this, it is still an area that is little valued in the care of children in neonatal intensive care.

“In practice, on a daily basis, in routine, in this confusion that happens inside the ICU, pain prevention does not always happen, although it is possible” (MD07).

“So, in fact, there are still professionals who, despite having theoretical knowledge, do not adopt this knowledge in their practice” (NR06).

“I am speaking as a bedside nurse. Sometimes you have so many things to do that the pain goes unnoticed. But we are qualified to assess, prevent and treat. We have this ability, I’m sure that all professionals in the NICU are qualified. But at times they may not do it” (NR08).

In many of their statements, professionals highlighted that the subjectivity of neonatal pain corroborates the necessity of instruments that allow its recognition through objective parameters and point out the lack of verbalization as a major impediment for a more effective assessment.

“What I think is important about the scale is that I can say that a baby is showing signs of pain. Because you score. You know how to say that he was really presenting this and now he is presenting only that, or he is presenting more... So, by the scale, being numerically punctuated I think it is easier” [PT03].

“Because the newborn cannot say ‘I am in pain’, it is a very subjective thing. That’s why scales are interesting” [MD06].

These last statements find support in the literature, which points out the inability of newborns to describe their pain verbally as a challenge for the correct measurement of this symptom [21]. These statements carry an important paradox - the scales are only filled in from what is observed in the NB. They are the physiological and behavioral expressions of the newborns, therefore, visible, that will indicate the scale score.

Thus, they forget that the newborn’s communication, even if a preterm, is rich and expressive. Mathelin [25] helps us by suggesting the importance of the way we try to approach the NB to “to address the baby, while human addressing another human, inhabited by his affections, thoughts, desires” (p. 44). Courrone [26] says: “Premature baby is a whole person, apart, endowed with competence and sensations: he is able to make us understand him with his communication no matter how little we pay attention and manage to recognize the signs he gives us. (p138).

We can recall here proposals of the Kangaroo Method regarding the protection of newborns, especially those who are so early exposed to uncomfortable situations: “Nothing is more challenging than helping to take care of this moment, in an attentive, safe way, knowing each particularity; respecting its wholeness and knowing how to prevent, anticipate and act when necessary” (p.7). When the care routine is faced with situations that involve necessary but invasive procedures the use of pain scales promotes protective interventions for the small child.

Seeking to understand and justify conduct

If the pain exists, traumatizes and leaves marks on the newborn, then why are its evaluation and treatment not performed? Some professionals tried to explain: “I think that the pain needs to be worked on all the time, just like hand washing, because otherwise we fall into the routine! You don’t even notice it! The whole team needs to try and police themselves more. You need to be more attentive and get everyone’s attention” (NR01).

Or even, the unit’s routine and its hierarchy also seem decisive so that the change of conduct does not happen in a more systematic way.

“We happen to arrive on duty and the baby is evidently in pain. Only no one had taken conduct. So, we need to intervene! Often, too, we realize that if it’s not prescribed, there is no NIPS assessment. Nursing has used it, even when the doctor does not prescribe the evaluation. We have to prevent the pain because this baby may be exposed” (NR08).

On the other hand, “Doctors are the only ones using the pain protocol. It’s according to the medical prescription. Who will develop NIPS is not just the doctor. But (the other professionals) will only pay attention to NIPS, and evaluate, if the doctor prescribes it” (MD08).

Getting used to tasks also appears as a justification “The NIPS scale is stuck there and I don’t know if people are aware of it. Sometimes we look for signs of pain but don’t check the sign with the NIPS scale to say ‘look’ (PT05).

Another issue present in the interviews shows us that there are doubts regarding the correct application of the scales, due to flaws in their professional training. Most said that the education regarding the management of neonatal pain did not happen during graduation, residency in pediatrics and sometimes even during post-graduation. Only after starting work at the NICU did they come to have contact with this topic and had the opportunity to train in courses or in their daily routine.

For many professionals, the solution for implementing pain assessment effectively depends on a curricular change to insert this content, permanent training for the whole NICU team and the establishment of a protocol.

The professionals showed doubt regarding the role that each professional category plays in pain management, suggesting a necessary hierarchy for its use. The nurse is the professional recognized by the other categories as the one with the greatest perception of pain. However, this professional category recognize the duty to assess the newborn's pain only when prescribed by a doctor. Physiotherapists, speech therapists and occupational therapists did not see themselves as able to perform this function, although they know they perform procedures that can cause pain. Physiotherapists in particular reported knowledge of each item of the scales and their corresponding score, although they stated that they do not use it routinely, which was also found in a study conducted in São Paulo with groups of these professionals [3].

Medical doctors stated that they had the knowledge of pain treatment through a protocol and described themselves as prescribers and executors. They mentioned that it is their role to prescribe the scale and record it so that pain assessment can be done by all professionals. They recognized that drug administration should be done based on the assessment of the scales.

In the context of kangaroo care [1], however, pain must always be assessed in a clinical setting and coping with it is the main objective of all health professionals who assist the newborn (p304). It is important that all professionals have knowledge that enables them to recognize neonatal pain, the discomfort of the newborn and that they can apply the assessment scales that facilitate the identification of pain.

This task cannot be reduced to nursing work or medical indication, because several interventions of professionals such as physiotherapists, speech therapists and occupational therapists can be unpleasant to the baby. Tube aspiration, as well as other procedures, can bring pain or discomfort to the newborn. Their physiological or even behavioral responses should be signs that guide the essential procedures. To do so, they must be decoded by the professional's attentive and available eye. Only by acting in this way, it will be possible to put into practice comprehensive and humanized care for the newborn, with improvement in pain and, consequently, in the quality of life of these newborns as proposed by the kangaroo care. Recalling the information obtained through the kangaroo care proposals, we found the following statement: "We know that the kangaroo position decreases pain, but not always the procedures can be carried out with the baby in kangaroo position, but the fact that the mother is there, holding the baby's hand, this is important!" [NR06].

Field observation of the study

During participant observation, we witnessed the performance of several stimuli known to be painful, such as manipulation of the newborn and of procedures (intubation, gastric drainage and venipuncture, for example). The team did not always seem attentive to what they were doing and to the babies' expressions. There are divergences between the reflections made by the professionals and the attitudes taken regarding the neonatal pain. Sometimes we identified a lack of preventive measures. At one point, a NB cried for 50 minutes without professional interference.

Similarly, although the professionals recognized the importance of the information provided by the use of the scales, the analysis of medical records showed that few had records related to pain or regarding the use of pain scales. In addition, during the observation, we found only few incubators with scales and protocols available for use of health professionals.

Such conducts, which oscillate between having the information and acting, suggest difficulties regarding the observation of the newborn's suffering. Most professionals are especially attentive to signs of agitation or altered physiological parameters but are not concerned with decoding the subtle signs that the newborn shows.

"He may suddenly have a decrease in oxygen saturation, some parameters will decrease. Or sometimes he is so tired of everything that he goes out, sleeps too much after so much pain, so much suffering and he goes out" [NR11].

No neonatal health professional can stay immune to a baby who is uncomfortable. Issues like those were discussed a few years ago by Negri [27]. This author shows, in a very appropriate way, in her classic book *The Newborn in the Intensive Care Unit*, that the baby's suffering during some procedures or in his incubator with the devices that offer support, is extremely mobilizing. Negri describes having managed to stimulate these professionals to integrate the baby's body and mind at the moment when they start to approach the newborn with a look involved with their suffering. With this he caused an enabling learning so that the evaluation of these painful moments would become more effective for the use of mechanisms to help reduce pain. The indication that health professionals in the NICU benefit from these observations by a professional qualified to do so, undoubtedly strengthens and supports the team's findings regarding the baby's response.

For this author, being accompanied in this task allows the medical doctor, the nurse, the therapists to face the expressions of suffering that the baby presents. They become more able to cope with their feelings of identification with the newborn, something common and that is part of the functioning of health teams in NU, but which causes the professionals to meet with their discomforts and early pain. Recognizing neonatal pain in times of painful procedures requires maturity, skill and perception, especially since it is a population that communicates non-verbally. This possibility of being accompanied at this time strengthens each member of the team, allowing a more qualified meeting between the baby and its caregiver.

What to do?

In view of the reports of difficulties in pain perception, assessment through the application of pain scales, the absence of routine performance and the lack of a written record of its parameters, it was possible to verify a non-systematization of neonatal pain assessment in the NU of this study. Although they recognize the need for implementation of assessment instruments in the care routine, this reality does not fully occur, similarly to what is seen in many Neonatal Intensive care Units worldwide.

It was shown that there were, in this service, written guidelines on care for pain, in the form of "Work Instructions" (WI). In the interviews, some professionals mention "a pain protocol" that was used only by doctors. However, in the WI there is reference to pain assessment, the use of the NIPS scale, the record in the medical record, and the interventions that must be made by all professionals.

Along the way of the formulation of this manuscript, supported by the data obtained from the interviews and direct observation in NU, we confirmed the need for resuming a process of careful learning with the health teams as to really implement this kind of care. The American Academy of Pediatrics (AAP), in 2016, pointed out the need to be aware that there are gaps in knowledge regarding the most effective measures to prevent and relieve neonatal pain. For the AAP, this indicates the need of implementing, in all neonatology services, effective programs that address these gaps [11].

Therefore, it is urgent to think about strategies regarding discussions and training on pain prevention and its approach in neonatal units because: "When the professional begins to understand this pain mechanism in the premature baby, he feels more participative as an ally to not causing pain" (MD12).

It seems appropriate to update studies that allow the recognition of the abilities and skills of preterm newborns at their different gestational ages as well as their behavioral states [1]. In addition, we suggest the creation of moments of accompanied observation as remembered by Negri and described above. For that, it is necessary that on each shift it is possible for one of the professionals to withdraw from their activities for a period not exceeding fifteen minutes to accompany a colleague who remains taking care of the newborns and to carry out observations of the baby. Because his body is in the incubator, the way he expresses during contact with parents, with the team, how it is possible to think about his behavior, what he expresses, what he seems to want. All his responses must be valued and recorded. These records can be exchanged in small group discussions, allowing free verbalizations occur and later these are sorted into ideas into a care project that enables better comfort to the newborn.

This will be a form of learning that is capable of really training health professionals, bearing in mind that it is the managers' responsibility to continuing education and to validate the competence of professionals in the assessment and management of pain, in addition to maintaining an environment conducive to well-being of the newborn and his family [1].

We cannot forget that the construction of this knowledge must go through the first years of graduation of the different professions that will later share the care in the NICU. The insertion of this theme must be permanent from the undergraduate, graduate and continuing education curricula, as well as the adoption of protocols for the entire NU team, as they are the main strategy for improving the work process aiming to minimize and inhibit pain triggering factors.

Final Considerations

The results obtained in this study demonstrated that despite the fact that NICU professionals recognize neonatal pain and have knowledge about the topic, their attitudes are contradictory, as they do not put their knowledge into practice. All of them reported knowing the neonatal pain assessment scales, however few use them regularly [28].

Based on the findings, we emphasize the importance of raising awareness to the theme of neonatal pain in the context of NICU, combined with the continuing education of health professionals in this sector. In order to improve the care given to preterm infants, it is essential that the updating of knowledge promote re-signification of practices related to the management of painful events generated by procedures, as well as the humanization of conduct in the field of neonatology.

Health education is an instrument capable of modifying behaviors that promote humanization and a care committed to the patient's well-being. There is evidence that scales for pain assessment need to be introduced in the care routine and the need for training, so that it is carried out by the entire team, enabling systematic pain assessment. In addition, it is necessary to implement, in the curriculum of schools in the health area, disciplines with the purpose of teaching and disseminating pain care.

Returning to our motivation regarding the subject of pain and care promoted by the Humanized Care for the Newborn - Kangaroo Method, in Brazil, we are aware of how much basic principles of this intervention can contribute to the prevention of pain in newborns. Not only because of the theoretical resources that are part of the professional's performance in the NU, of the guidelines for the care with gentle touches, speaking to the baby, the concern with hospital ecology, but especially for the observed effectiveness of skin-to-skin contact (or kangaroo position) during invasive procedures [28]. The baby, feeling his skin in direct contact with the skin of the maternal body, experiences security and confidence even towards possible discomfort. And this will be the learning that he will take with him in his development.

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