

Identification and Proper Management of Pain in Newborns: A Literature Review

Identificação e Manejo Adequado da Dor no Recém-nascido: Revisão da Literatura

Identificación y Manejo Adecuado del Dolor en el Recién Nacido: Revisión de la Literatura

RESUMO

Objetivo: Identificar as principais escalas de classificação da dor nos recém-nascidos, visando melhorar o cuidado e o entendimento da equipe profissional. Além disso, apresentar as principais ferramentas farmacológicas e não farmacológicas para o alívio da dor. **Método:** Revisão de literatura, realizada em diversas bases de dados, sem restrições de idioma ou período de publicação, considerando todos os trabalhos relevantes ao tema proposto. **Resultados:** A análise revelou a fragilidade dos profissionais em identificar a dor em recém-nascidos. No entanto, o uso de escalas de dor melhorou a percepção dos cuidadores sobre a dor, e os métodos farmacológicos e não farmacológicos foram eficazes em atenuação da dor nesse público-alvo. **Conclusão:** Considerando que na esfera da neonatologia é possível visualizar diversos avanços no entendimento, a utilização de instrumentos e alternativas pode proporcionar um atendimento holístico e humanizado para os neonatos, melhorando sua experiência em um ambiente frágil.

DESCRIPTORES: Neonatologia; Dor; Classificação; Métodos e Recém-Nascido.

ABSTRACT

Objective: To identify the main pain assessment scales for newborns, aiming to improve the care and understanding of the professional team. Additionally, to present the main pharmacological and non-pharmacological tools for pain relief. **Method:** Literature review conducted in various databases, without restrictions on language or publication date, considering all relevant works on the proposed topic. **Results:** The analysis revealed the difficulties professionals face in identifying pain in newborns. However, the use of pain scales improved caregivers' perception of pain, and both pharmacological and non-pharmacological methods were effective in alleviating pain in this target population. **Conclusion:** Considering that in the field of neonatology it is possible to see several advances in understanding, the use of instruments and alternatives can provide holistic and humanized care for neonates, improving their experience in a fragile environment.

DESCRIPTORS: Neonatology; Pain; Classification; Methods; Newborn.

RESUMEN

Objetivo: Identificar las principales escalas de clasificación del dolor en recién nacidos, con el fin de mejorar la atención y la comprensión del equipo profesional. Además, se presentan las principales herramientas farmacológicas y no farmacológicas para el alivio del dolor. **Método:** Revisión de literatura, realizada en diversas bases de datos, sin restricciones de idioma o período de publicación, considerando todos los trabajos relevantes al tema propuesto. **Resultados:** El análisis reveló la fragilidad de los profesionales para identificar el dolor en recién nacidos. Sin embargo, el uso de escalas de dolor mejoró la percepción de los cuidadores sobre el dolor, y los métodos farmacológicos y no farmacológicos fueron eficaces en la atenuación del dolor en este grupo objetivo. **Conclusión:** Considerando que en el ámbito de la neonatología es posible visualizar diversos avances en la comprensión, la utilización de instrumentos y alternativas puede proporcionar una atención holística y humanizada para los neonatos, mejorando su experiencia en un entorno frágil.

DESCRIPTORES: Neonatología; Dolor; Clasificación; Métodos; Recién Nacido.

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Literature Review

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INTRODUCTION

The proper identification and management of pain in the newborn had historically been neglected in clinical practices and procedures, since the possibility of pain in the neonate was not considered. The belief that neonates did not feel pain was supported by the supposed immaturity of their systems to capture and transmit painful stimuli. However, technological advances have made it possible to understand that neonates have functional and neurochemical components for perceiving pain^[1].

Although technological advances in the assessment and identification of pain in newborns have been recognized, health professionals still find it difficult to understand pain at this stage, which can lead to delays in recovery and failures in the newborn's behavioral and physiological development^[2]. In addition, repeated stimuli in long-term painful procedures can cause hypersensitivity to painful and non-painful stimuli, as well as a chronic nociceptive state. Due to the site receiving repeated pain stimuli, there is an increase in nerve branching at the

traumatized site, an increase in sensitivity is generated, and it can be maintained chronically^[3].

It is accepted that identifying pain in neonates is not a simple task, as they signal their dissatisfaction with various factors and situations that may not be painful through crying, which is not specific to newborns. You need to be even more sensitive to identify suffering in them. There is no total gold standard for identifying pain; however, there are scales and vital parameters capable of guiding the identification of pain^[1].

As stated by the National Council for the Rights of Children and Adolescents (CONANDA) Resolution 41 of October 13, 1995, item 7 affirms the "Right not to feel pain when there are means to avoid it". It is a professional duty to guarantee the NB as much pain relief as possible and to minimize the number of painful stimuli, guaranteeing their well-being in an integral way^[4].

Currently, many methods, both pharmacological and non-pharmacological, are used to relieve pain in neonates, depending on the institution's protocol. It is clear that, in many cases,

it is not necessary to use pharmacological methods on neonates, as some methods are as successful in some situations as drugs for pain relief. Methods such as breastfeeding, noise reduction, the kangaroo method, promoting skin-to-skin contact, music therapy and non-nutritive sucking have proved effective^[5].

After these observations, the desire arose to gain a more reliable understanding of the particularities involved in understanding pain in neonates, who, although human, have different ways of caring for themselves than adults. Since pain is a very subjective phenomenon, the main objective was to evaluate effective methods for identifying and managing pain in newborns. By addressing specific aspects related to the characteristics of pain in neonates, including the identification and analysis of pain assessment scales and tools, comparing different approaches to interventions, both pharmacological and non-pharmacological.

METHODS

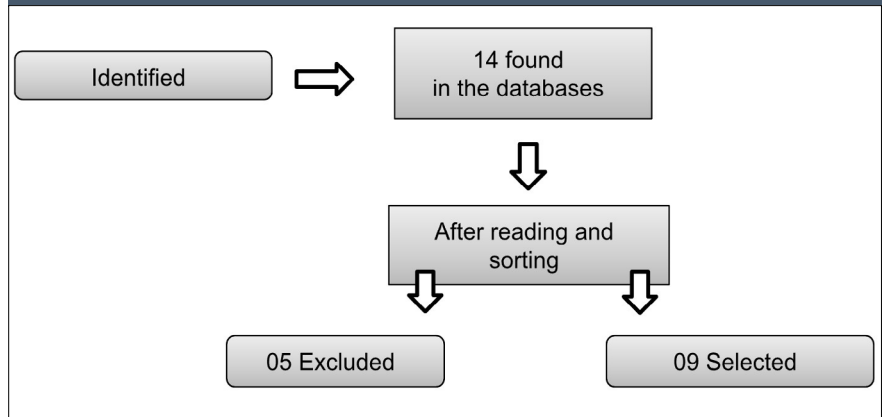
This study consists of a literature review carried out at the University of

Rio Verde. The search included articles with no language or time restrictions, as long as they were related to the proposed theme. An advanced search was carried out using the Health Sciences Descriptors (DeCS) in Portuguese: "Neonatology; Pain; Classification; Methods and Newborn". The selection and inclusion criteria were based on neonates of any gestational age, considering studies related to the identification and management of neonatal pain.

We excluded studies outside the proposed theme, repeated articles that did not focus on the objective of this study, studies with unclear methodology, as well as studies that involved ages beyond the neonatal period or that did not address the assessment or management of pain in newborns.

After pre-selection in the databases, 14 scientific articles, 1 book and 2 consensus or guidelines were selected. Of these, 5 were excluded because they didn't meet the inclusion criteria, leaving 09 that corresponded to the topic sought (Figure 1).

Figure 1- Flowchart of the choice of studies for the literature review.



Source: Own elaboration.

RESULTS

Through a search using health descriptors and systematic reading of the content available in the main databases (SciELO, VHL, Google Scholar and PubMed), 14 studies, 1 book and 2 consensus or guidelines were selected. Five were excluded because they were not focused on the objective of the study or because they had

repeated subjects; the others were selected for discussion.

The following table shows the results filtered and analyzed, highlighting the material selected for discussion on the topics covered in the bibliographic bases. In addition, the table discusses the predominant view of the articles selected, highlighting the most frequent problem analyzed in neonatal ICUs in relation to coping with pain in this population (Chart 1).

Chart 1 - Characterization of the articles analyzed, according to title, author, year of publication, objective, study design, significant results or even the study's conclusions.

Author and year	Objectives	Study design	Significant Results / Conclusions
Moura e Souza (2021)	To describe the nursing team's knowledge of pain assessment and management in newborns.	Descriptive, cross-sectional, quantitative.	The most common changes in the face of pain: crying, heart rate and tremors in the hands and feet. Long-term consequences: attention deficit, lower pain tolerance, tendency to develop anxiety and depression. Non-nutritive sucking, breastfeeding and the kangaroo method were the most commonly used non-pharmacological measures. Challenges: lack of medical management, difficulty in assessing pain and lack of notification of pain.
Valete; Montenegro; Ferreira (2024)	To investigate the construct that reflects the non-pharmacological management of neonatal pain in a Brazilian rooming-in unit and to identify the preferred intervention.	Factor analysis.	The construct was made up of three factors in the following order: 1) knowledge and impact of neonatal pain on parents, 2) benefits of pain treatment and 3) non-pharmacological interventions. Breastfeeding is part of the first factor, revealing its special importance. Reducing light is part of the second factor. Non-nutritive sucking with sweet solution, the kangaroo position and music therapy are part of the third factor.
Medeiros and Madeira (2006)	To study aspects of pain in neonates in intensive care, identifying methods of prevention, pharmacological and non-pharmacological treatment of pain in newborns, and thus contribute to the development of a pain protocol in neonatal intensive care, which will be used by the nursing team and other professionals.	Review.	Studies have shown simple and easy suggestions that should be used in the NICU, such as changing behaviors and routines. Therefore, it is believed that there is a need for adequate training for the multi-professional team, especially the nursing team, which is continuously present with the newborn.

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Bonato; Dezordi; Rebelato (2024)	To understand the perceptions of nursing professionals who work in the Neonatal Intensive Care Unit (NICU) and in the nursery about newborn pain and its management.	A descriptive, exploratory study with a qualitative approach.	The testimonies indicate the need to invest in educational strategies on the assessment and treatment of neonatal pain in the search for the changes needed to improve pain management in this sector.
Souza <i>et al.</i> (2022)	To assess the knowledge of health professionals about the perception of pain in neonates.	Integrative Review.	The results show that health professionals have knowledge about the perception of pain in neonates. However, the way they act on this issue is still worrying, as it shows that there is a need to improve practice in conjunction with evidence, as professionals do not effectively apply protocols that include validated methods and instruments for assessing pain in newborns.
Santos <i>et al.</i> (2021)	To describe the nursing team's strategies for identifying, assessing and intervening in pain in newborns admitted to Intensive Care Units.	Integrative Review.	Nurses' knowledge of pain management and the use of pain assessment scales is essential for the nursing staff to adhere to and apply the methods, especially the non-pharmacological ones.
Dumont <i>et al.</i> , (2024)	To review the evidence on the use of intrathecal pump systems for opioid administration in patients with chronic pain, in order to draw conclusions on efficacy, side effects and ACE	Literature review.	This study revealed the efficacy of non-pharmacological interventions, facilitated containment, wrapping and hydrotherapy, demonstrating their importance in pain management during procedures that cause low-intensity pain sensitivity in NBs.
Ramos, (2023)	To evaluate existing randomized clinical trials (RCTs) for evidence of the association of acupuncture and acupressure with the reduction of cancer pain.	Review.	Darwin's approach to babies' emotions can help in the reflection process of caregivers who work in different training spaces, with a view to humanizing their actions with children at this stage of life.
Silva <i>et al.</i> (2020)	To systematically analyze the literature on the use and effect of Reiki, Therapeutic Touch and Healing Touch in cancer, pain and stress-anxiety care.	Integrative review.	It was possible to identify that the ofuro is able to offer PTNBs a humanized approach, considered to be one of the most indicated techniques. It promotes adaptive improvement to the environment, pain relief, weight gain, decreased heart rate and irritability.

DISCUSSION

Understanding and managing pain in newborns represents significant challenges in clinical practice. Since Darwin's first observations, crying has been identified as a primary manifes-

tation of need in human beings. Later studies confirmed that it can indicate pain or discomfort and is a universally present signal, regardless of culture [6]. However, the assessment of neonatal pain cannot be based exclusively on crying, since its non-specificity

makes it difficult to determine the exact cause of the pain.

Advances in research show that the neonate has the ability to perceive and process painful stimuli from intrauterine life. At around seven weeks of gestational age, the neurons are

developed, and around the twentieth week the first sensory receptors begin to develop, allowing nociception. With the progressive maturation of the nervous system, newborns become increasingly capable of modulating painful stimuli^[2]. It is therefore essential that the healthcare team has the knowledge and sensitivity to assess and manage pain effectively.

Studies have shown that teams understand that newborns have the capacity to feel pain. However, the studies showed that the teams have little or no scientific understanding of pain management in the neonatal population, and empirical forms of assessment are still used, compromising the quality of patient care. Considering that nursing is primarily responsible for maintaining and carrying out care, it is essential that the category is aware of the particularities of these patients, who require a sharper vision due to the challenge of not having a verbal form of communication. Pain in itself is subjective; when it is not possible to express it verbally, expertise is needed to adapt the use of means that bring the most evidence of benefit to babies^[1].

According to the Fiocruz Pain Management Guideline, the neonatal population is considered vulnerable due to their inability to verbalize pain. Every day, these patients undergo an average of 7 to 17 painful procedures, including heel lancing, aspiration, venipuncture and peripheral venous catheter insertion. Some of these procedures are classified according to pain intensity as: very painful, painful and stressful. Among the very painful procedures are oro-tracheal tube aspiration, heel puncture and peripherally inserted central catheter (PICC) placement. Nursing, along with the multi-professional team, is involved in these procedures on a daily basis. It is interesting to note that some procedures, such as diaper changes, weighing and catheter

removal, are considered stressful. However, it is possible to plan care to reduce stress and pain in newborns^[7].

Following the reasoning that pain, regardless of its intensity, causes some kind of damage or discomfort to the integrity of the whole being, it is no different in the newborn. Repeated painful sensations can cause excessive stimulation in the nociceptive pathways, due to the immaturity of these pathways, promote a chronic state of nociceptive stimulation and psychological stress, resulting in a repercussion of deleterious effects from short to long term^[2].

In order to assess and detect neonatal pain, scales developed specifically for this population are used. These include the NFCS (Neonatal Facial Coding System), which analyzes facial expressions; the NIPS (Neonatal Infant Pain Scale), which evaluates behavioral and physiological parameters; the CRIES (Crying, Requires O₂ for saturation above 90%, Increased vital signs, Expression, and Sleeplessness), aimed at postoperative assessment; and the PIPP (Premature Infant Pain Profile), which focuses on acute pain in premature infants^[8]. The use of these tools allows for a more precise and individualized approach to neonatal pain management.

The responsibility for pain control lies entirely with the entire multidisciplinary team. However, the nurse, as the person responsible for planning care, can be instrumental in alleviating pain through the implementation of institutional protocols and the use of the Nursing Process (NP). Nurses and nursing residents can use scales included in nursing processes, as part of the Systematization of Nursing Care (SNC), a document completed by nurses. The use of these scales during painful procedures can help mitigate pain. In addition, due to the more constant contact with the patient and the technical team, nurses are qualified to prescribe the neces-

sary care for the technical team they lead^[9].

In addition to proper assessment, effective therapeutic strategies are essential to minimize the impact of pain on newborns. Non-pharmacological methods have shown good results in reducing neonatal discomfort, including facilitated restraint and wrapping^[10]. In addition to breastfeeding, noise reduction, the kangaroo method, skin-to-skin contact, music therapy and non-nutritive sucking. These are methods with minimal or no cost that are effective in neonatal pain, involve caregivers, increase the mother-baby or caregiver-baby bond, and reassure the family. This is because, by being included in the process, the family can feel more confident in the results, give more credibility to the team and better understand the adverse events of the pain, which helps with proper management^[5]. The ofuro bath has also been shown to be beneficial in relieving neonatal pain^[11].

Pharmacologically, opioid and non-opioid analgesics are widely used, as well as local anesthetics and anesthetic buttons for puncture. In more complex cases, sedation may be necessary^[8]. However, the ideal management of neonatal pain should prioritize minimizing painful procedures and reducing unnecessary manipulation whenever possible.

The implementation of effective strategies depends on the interaction between health professionals, requiring careful planning during bedside visits and procedures. In premature neonates or those in critical clinical conditions, the need for frequent interventions can make it difficult to reduce exposure to pain. However, the team must strike a balance between the therapeutic demands and the comfort of the newborn. Seeking training, resolving adverse events through appropriate management, promoting strategies to reduce hospitalization time and evaluating the

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effectiveness of the protocols implemented can change many aspects within ICUs, even reducing clinical problems^[12].

Despite the availability of various methods for assessing and managing neonatal pain, one of the main challenges is the lack of a universally accepted definition of pain for this population. The subjective nature of pain, coupled with differences in clinical experience and the perception of health professionals, can significantly

interfere with the results observed. It is therefore essential that the approach to neonatal pain management is continuous, based on scientific evidence and adaptable to the specific needs of each patient^[11].

Although each institution can draw up its own protocols, the use of consolidated guidelines, combined with validated techniques, allows for the construction of a care plan that integrates the systematic assessment of pain - using appropriate scales -

with the choice of the most effective intervention method. In this context, we present a practical and well-founded systematization of nursing conduct that can be incorporated into interdisciplinary care strategies, favouring safer and more effective interventions in the management of neonatal pain (Chart 2).

Quadro 2 – Técnicas de cuidado de enfermagem em quadros, muito dolorosos, dolorosos e estressantes em recém-nascidos.

Very painful	Painful	Stressful
Consider the use of analgesia and sedation.	Consider using intermittent or continuous analgesia.	Execution planning and bedside passage.
Consider using intermittent or continuous analgesia.	Provide sweetened solution + non-nutritive suction.	Reduce sounds, conversations, loud laughter, excessive noise from equipment.
Consider using anesthetic buttons.	Breastfeeding or colostrum therapy.	Promoting music therapy.
Observe the change of decubitus or the risk of injury in procedures with greater potential for adverse events.	Perform the kangaroo method, skin-to-skin contact.	Reduce brightness.
Use comfort measures.	Facilitate containment.	Take a hot tub bath.

Source: Guidelines for the prevention and management of acute pain due to painful procedures, Fiocruz, 2023; MEDEIROS; MADEIRA, 2006.

CONCLUSION

Neonatology has advanced in the understanding and treatment of pain, allowing for a more holistic and humanized approach. The use of tools and alternatives for pain management can significantly improve the neonate's experience in a fragile environ-

ment, highlighting the importance of effective tools in this context. Therefore, this study was aimed at identifying the main pain classification scales for newborns, as well as seeking to improve care, fostering better understanding among care teams to achieve greater pain mitigation in the neonatal population.

In addition, the main pharmacological and non-pharmacological tools for pain relief are presented. It

is believed that there is still a need for training and qualification of the teams, due to the complexity of the problem. However, it is hoped that professionals will become sensitized to this delicate universe and promote dignity and the meeting of these human beings' needs, including pain relief. May this study be an incentive for the teams to implement more and more improvements.

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