

FT22

## Yenidoğanda Ağrı

### Pain İn Newborn

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Yenidoğanda ağrının önemi ilk kez 1980'lerde değerlendirilmiş ve bu yıllarda yenidoğanda ağrı algısını tanımlamaya başlayan bir dizi çalışma ortaya çıkmıştır. Ağrı, yenidoğanlar için stres verici bir unsurdur. Yenidoğanlar yaşadıkları ağrıya karşı sözel olarak yanıt veremediğinden dolayı ağrıyı değerlendirmek zordur. Yenidoğanlarda ağrının kısa dönem değerlendirilmesinde davranışsal ve fizyolojik değişkenler, saatler ve günler süren ağrı durumlarında ise hormon düzeyleri ve metabolik göstergeler ele alınmalıdır. Yenidoğanda ağrının önlenmesi, tedavisi, tedavinin değerlendirilmesi ve ağrının ölçülmesinde, kullanılmak amacıyla; uygulaması kolay, objektif sonuç verebilen, hemşireler tarafından da kullanılabilen ve bakımda da kolaylık sağlayabilen yenidoğan ağrı ölçekleri geliştirilmiştir. Bununla birlikte, günümüzde yenidoğan ağrısını değerlendirmek için evrensel olarak kabul edilmiş bir ölçek yoktur. Ağrı yaşayan tüm yenidoğanların etkili ve güvenli yöntemlerle ağrısının azaltılması temel bir insan hakkıdır. Yenidoğanlarda ağrı yönetiminde amaç; yaşamın ilk dakikalarından itibaren ağrılı girişimlere maruz kalan yenidoğanların hissettiği ağrıyı en aza indirmek ve yenidoğanın ağrı ile baş etmesine yardım etmektir. Bu amaç doğrultusunda ağrı; doğru bir şekilde değerlendirildikten sonra, sağlık profesyonelleri tarafından farmakolojik ve nonfarmakolojik yöntemler kullanılarak sağlanan etkin bakımla yönetilebilir. Ağrı tedavisinde önemli ve yaygın yol ilaç tedavisidir ancak ağrıyı hafifletmek için kullanılan ilaçların önemli yan etkilerinin olduğu da bilinmektedir. İlaç kullanılmadan yapılan tüm uygulamalar, nonfarmakolojik yöntemler olarak tanımlanmaktadır.

**Anahtar Kelimeler:** ağrı, ağrı yönetimi, hemşire, nonfarmakolojik yöntemler, yenidoğan

#### Abstract

The importance of pain in the newborn was first evaluated in the 1980s, and a series of studies began to describe the perception of pain in the newborn. Pain is a stressor for newborns. Since newborns do not respond verbally to the pain they experience, it is difficult to assess the pain. Behavioral and physiological variables should be considered in the short-term evaluation of pain in newborns, and hormone levels and metabolic indicators should be considered in pain situations lasting hours and days. In order to be used in the prevention, treatment, evaluation of treatment and measurement of pain in the newborn; newborn pain scales which are easy to apply, can provide objective results, can be used by nurses and provide convenience in care have been developed. However, there is currently no universally accepted scale for assessing newborn pain. It is a fundamental human right to reduce the pain of all newborns with effective and safe methods. Aim of pain management in newborns; minimize the pain experienced by newborns who have been exposed to painful interventions from the first minutes of life and to help the newborn cope with the pain. In accordance with this purpose, after the pain is evaluated correctly, It can be managed by effective care provided by healthcare professionals using pharmacological and non-pharmacological methods. Drug treatment is an important and

common way to treat pain, but it is known that drugs used to alleviate pain have significant side effects. All applications without drug use are defined as non-pharmacological methods.

**Key Words:** *pain, pain management, nurse, non-pharmacological methods, newborn*

## 1. PAIN IN NEWBORN

The importance of pain in the newborn was first evaluated in the 1980s. Before this time, it was thought that the newborns were inadequate to perceive and remember the pain because the nervous system was not fully developed and myelination was not completed. Also in these years, thoughts delayed the studies of pain in the newborn because the risks of pharmacological agents were higher than the potential benefits and the pain experience did not adversely affect the newborn (31, 4, 30). In the 1980s, a series of studies began to define pain perception in the newborn (4). In the study of Perlman and Volpe (1983); It has been reported that procedural stress in preterm infants undergoing care in the neonatal intensive care unit (NICU) causes changes in the blood flow of the brain (33). Anand et al. (1987) In his study which is a turning point; It was found that the newborns who were anesthetized for the surgery recovered faster in the postoperative period and that these newborns developed less diseases (6). Since myelination of spinal fibers continues after birth, pain transmission in newborns occurs slowly through C fibers (thin fibers) instead of A-delta fibers (broad myelin and fast conduction). This transmission by C fibers causes widespread pain and the center of the pain is not fully understood (7, 32, 46). Although the pain impulse is slow because it is carried by C fibers, the distance from the pain area to the brain is also shorter due to the shorter neuromuscular distance and the distance between neurons (46).

## 2. SYMPTOMS OF PAIN IN NEWBORN

Pain is a stressor for newborns (41). Pain experienced by the infant; it can prevent her behavior, family and infant interaction, infant's adaptation to the outside world, It also causes changes in the development of the brain and senses and growth is adversely affected (44, 38, 12, 22). Since newborns do not respond verbally to the pain they experience, it is difficult to assess the pain (15, 35, 14, 51). Behavioral and physiological variables should be considered in the short-term evaluation of pain in newborns, and hormone levels and metabolic indicators should be considered in pain situations lasting hours and days (9, 47).

## 3. THE FACTORS AFFECTING PAIN IN THE NEWBORN

Some factors are effective in the perception of pain and pain response in the newborn. These factors include;

Gestation age

Central nervous system maturation

Gender

Delivery method

Alertness

Type, duration of painful stimuli

Environment and general health

Severity of the disease

Past experiences

There are individual differences and ability to cope (35, 3, 47, 49).

## 4. EVALUATION OF PAIN IN NEWBORN

Some standards have been set by Agency for Health Care Policy and Research (AHCPR) to ensure that pain assessment in the newborn can be performed correctly. According to these standards:

Evaluations should be made at regular intervals

Use reliable and valid measurement methods

Effective participation of the family in the care of the newborn

Multidimensional evaluation including behavioral and physiological symptoms (42, 25).

In order to be used in the prevention, treatment, evaluation of treatment and measurement of pain in the newborn; newborn pain scales which are easy to apply, can provide objective results, can be used by nurses and provide convenience in care have been developed. In the development of these scales, behavioral and physiological responses of the newborn to pain were utilized (24). However, there is currently no universally accepted scale for assessing newborn pain (15, 50). Pain assessment; In addition to the measurement tools and status assessment of the newborn, the perceptions, beliefs, values, experiences and knowledge of the healthcare professionals who will evaluate the pain and take care of the newborn are effective (39). There is no “gold standard” in the evaluation of pain. Behavioral parameters are often used because it is an accurate sign that is easy to evaluate, non-invasive and reflects pain.

## 5. PAIN MANAGEMENT IN NEWBORN

It is a fundamental human right to reduce the pain of all newborns with effective and safe methods (19). Aim of pain management in newborns; minimize the pain experienced by newborns who have been exposed to painful interventions from the first minutes of life and to help the newborn cope with the pain. In accordance with this purpose, after the pain is evaluated correctly, it can be managed by effective care provided by healthcare professionals using pharmacological and nonpharmacological methods (20, 2). Accurate pain management; it depends on the type, source, severity and duration of the pain. World Health Organization's recommendations for pain management;

Pain should be evaluated regularly

Pharmacological and non-pharmacological applications should be used together

If an analgesic is used, it should be given at night for the child to sleep comfortably.

The effects of analgesics should be known and monitored

Analgesic should be planned considering the pain and sensitivity of the child (18).

### 5.1. Pharmacological Methods in Pain Treatment

Drug treatment is an important and common way to treat pain in children. The drugs used in the treatment of pain are opioid (morphine, methadone, fentanyl and derivatives) and non-opioid analgesics (acetaminophen and nonsteroidal anti-inflammatory drugs), sedatives and local anesthetics. Whether sedation is required besides analgesia, it should be determined whether these are to be administered with a single drug or a combination, and the likelihood that the drugs taken together will interact. The type of analgesic drug to be selected depends on the severity of the pain. After appropriate drug selection is made, the route of administration and frequency of this drug should be determined. The oral route should always be the first route of choice. If necessary, intravenous, subcutaneous or transdermal routes should be used. The important thing is that the drug can be kept at a certain level at the blood level. The initial dose should be optimal and subsequent doses should be tailored to the patient's response. The main aim should be to provide early control of pain. Inadequate analgesic doses lead to prolonged pain and increased anxiety (34, 13). It is also known that pharmacological methods used to alleviate pain in the newborn have important side effects such as respiratory distress, changes in oxygen saturation, apnea, bradycardia, hypotension, partial airway obstruction and hypersalivation (5, 23). In the studies; It has been reported that morphine, a pharmacological agent to premature newborns during invasive procedures, adequate analgesic effect cannot be achieved even when intravenously (IV) is administered continuously (5). The use of opioids in spontaneous breathing may lead to respiratory depression (43). In the newborns, treatment options with the highest side effects and the least side effects related to analgesics used in pain treatment were investigated. Paracetamol, nonsteroidal anti-inflammatory, morphine and

fentanyl have been investigated in randomized controlled clinical studies and it has been concluded that intravenous paracetamol administration is the most appropriate option for newborn analgesia (45).

## 5.2. Non-pharmacological Methods in Pain Treatment

All applications without using drug to control pain are defined as non-pharmacological methods. These methods provide relief of endorphin which is the natural morphine of our body and reduce the pain (40, 16, 27, 48). Non-pharmacological methods increase the effectiveness of drugs when used together with analgesics (16, 21, 27). Pain relief in the newborn; attention can be drawn to other directions by using various senses such as visual, auditory, tactile and taste sensations. Attention is focused on pain again when the warning that draws attention is lifted (10). Kangaroo care, massage, music, touch, mother's voice, breast milk, mother's odor, suction, oral sucrose, glucose or other sweet fluids, acupuncture, reiki, aromatherapy, different sensory stimuli, such as nesting and fetal position activate the "gate control mechanism" which prevents pain sensation to the central nervous system (28, 10, 1, 8, 36). These practices play a key role in the management of newborn pain (37). Nonpharmacological methods can be used safely in painful procedures because of their short-term effect and tolerability (29).

The main benefits of non-pharmacological treatments are;

Easy to use

They are reliable

Applicability

It includes the ease of learning that will enable the universal implementation of any of these interventions (26).

## 6. AUTHORITY AND RESPONSIBILITIES OF THE NEWBORN NURSES IN PAIN MANAGEMENT

Newborn nurse in pain management; can actively contribute to the pain control process of the newborn by actively participating in pharmacological treatment, following the treatment process and using non-pharmacological treatment methods (11). Non-pharmacological methods are included in the independent roles of nurses and nurses need to increase their knowledge, skills and experiences about these methods. However, it is known that nurses lack knowledge about pain control and do not use the non-pharmacological methods they can apply independently by their own decisions (17). For this reason, it is very important that nurses receive the necessary training / certificates in order to apply non-pharmacological methods. Nurses should attend regular trainings on non-pharmacological and pharmacological pain management methods in the clinics and hospitals where they work.

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