
**DO NEONATES NEED PAIN MANAGEMENT? by Jeneeha Al Hebabi**

In the past, experts believed that premature babies could not feel pain. There was great misunderstanding regarding whether or not premature infants could experience pain and if so, what the best pain relief techniques or methods were. Early of studies of neurological development in neonates showed that premature infants’ perception and localization of pain was not present. In addition, because neonates might not form memories of painful experiences, they were not considered to be capable of understanding pain in way similar to adults (Urso, 2007, p. 236). These mistaken beliefs regarding premature babies’ pain perceptions were based on four misconceptions about neonate physiology. The first misconception is that neonates have an immature central nervous system. Second, that nerve fibers require myelination process in pain perception; third, that premature infants lack pain receptors; and fourth, that premature babies are unable to remember painful feelings (Urso, 2007, p. 236).

A premature infant is a baby born before 37 weeks gestation, and gestation is the period of time between conception and birth during which the fetus or embryo grows and develops inside the mother’s uterus. A normal pregnancy is from 38 to 42 weeks; if the infant is born before 37 weeks, then it is considered premature. A premature neonate may have difficulties in breathing and maintaining body temperature because of its immature body systems. There are common tests performed on premature infants when they are admitted to a Neonatal Intensive Care Unit (NICU), for instance, blood gas analysis, blood tests to check glucose, calcium and bilirubin levels, chest x-ray, and continuous cardio respiratory monitoring (the monitoring of breathing and heart rate). Further, each
premature infant most often undergo painful and stressful procedures each shift of each day, such as heel lancing and inserting chest tubes; this influences neonate health in general. In this paper I will show how incorrect early theories of neonatal pain are, and will argue that our new understandings of pain require the development of new medications and techniques for managing pain in neonates.

According to experts in the past, pain can be expressed as a mixture of physiological, emotional, and cognitive fields; these experts propagated the idea that premature infants do not actually feel pain in the true sense of the word. In fact, this shows only that evidence that premature infants do feel pain has been hidden and overlooked, since neonates cannot talk about their emotions including pain, or process their cognitive view of pain the same as adults. It must be highlighted that much is still unknown concerning the feelings and psychology of premature infants’ pain. However this does not imply this pain does not exist, or bring with it harmful results (Mitchell, Brooks and Roane, 2000, p. 59).

Some experts argue that neonates do not feel pain to the same degree as older people due to of their undeveloped nervous systems. For instance, as Mitchell, Brooks and Roane explain, “a common myth states that newborns will not feel pain because of incomplete myelination of nerve fibers” (2000, p 59). Basically, in this view, premature infants do not have a complete nervous system, so neonates will not be able to feel painful experiences. However, now we know that they can. Even as early as the nineteenth century, a doctor named Anand at the Children’s Hospital of Boston did a study which proved that neonates could feel pain as much and possibly even more than adults (Urso, 2007, P 237). Also, the study showed that the immaturity of neonates’ cerebral cortex, their un-myelinated nerve fibers, and the absence of previous painful feelings do not stop premature infants from feeling pain (Urso, 2007, p. 237).
According to Urso, "Anand’s studies proved that the immaturity of a newborn’s cerebral cortex, their un-myelinated nerve fibers, and the absence of previous painful experience do not prevent a neonate from feeling pain. His study also showed that pain can cause oxygen desaturation which is vital to brain oxygenation" (2007, p. 237). Urso's point is that pain can cause oxygen desaturation and that is most important to brain oxygenation. As I have seen during my experiences as neonatal nurse in an NICU, premature infants feel pain after and during painful procedures – and even simple procedures. Neonates start moving, and desaturation is apparent through a decreased heart beat shown on the monitor. So, pain can influence neonate health in general. In fact, according to the above, premature neonates can feel pain as much as, and possibly even more, than adults can.

Other researchers have argued that neonates do not feel pain to the same level as older peoples because of their undeveloped nervous systems. It is a common myth that premature infants will not feel pain because of the reason partial myelination of their nerve fibers. This myth has been confirmed with a false argument; in fact, because of the shorter space pain feelings have to travel and because the descending inhibition passageway in the spinal cord is immature and neonates are actually expected feel pain even more strongly than adults (Mitchell, Brooks and Roane, 2000, p 59). Stevens and Franck present the findings of Taddio, Katz, Ilersich & Koren (1997), that neonates who had been circumcised presented stronger pain replies to routine immunizations than neonates of the similar on age who had not been circumcised. Further, Anand and Scalzo (2000) suggest that repeated painful procedures in premature infants may form the basis of behaviour struggles later in life (Mitchell, Brooks and Roane, 2000, p. 59).

According to my experience, these latest researchers are correct in their findings. I have seen the pain start in neonates, with a stress response which increases in heart and
respiratory rates, increased blood pressure, and a decrease in oxygen saturation shown by the monitor. However, the above researchers do not go on to explore the implications of their studies. Pain management is needed for premature infants and neonates and we must develop new drugs and techniques to manage their pain.

The aims of pain management in neonates are: to reduce the pain strength, duration and physiologic rate of the pain incident, to maximize the premature infant’s capability to manage and recover, and to provide useful interventions with the smallest amount of risk to the neonates. These goals can be best accomplished by providing a developmentally responsive approach to care and applying appropriate techniques and pharmacologic interferences (Stevens and Franck, 1995, p. 3).

The purpose of the pain management is to reduce procedural pain and make the premature infant feel secure and healthy. The first way to attempt this is with non-pharmacological interventions for pain: managing containment and environmental factors. Containment means the use of gentle, continuous physical boundaries during the care of neonates, which will be useful in different ways. For example, gently wrapping the neonate's extremities close to the trunk, or making a nest by rolling up the blanket and the medical machines (such as pulse oximetre and intravenous fluid), with extremities flexed and hands near the mouth. The last containment method is holding the premature infant gently with limbs flexed at the midline. However, too much handling or touching of the premature infant may cause discomfort and excess stimulation (Mitchell, Brooks and Roane, 2000, p. 4). Many recent studies have shown that non-pharmacological methods have positive affects in reducing neonates' pain.

Furthermore, at birth, the developing neonate is suddenly placed in an environment that is hugely different from that inside the womb, which was capable of taking
responsibility for systems such as respiratory, cardiac, digestive and temperature. Thus, another technique for non-pharmacological intervention is environmental. Exposure of neonates to the NICU environment, with its continuous noise, bright lights, and many different procedures, may in itself cause pain, and has an important negative impact on the neonates (Mitchell, Brooks and Roane, 2000, p. 4). I agree with authors that environmental factors can stimulate pain in neonates because my experience as a neonatal nurse confirms it.

Neonates are forced to deal with a new environment with immature organs and systems that may be not functioning well. However, we can help this helpless population to recover as fast as possible after any painful procedure and we can record any pain alleviation methods used and their efficacy for every procedure or examination performed (Halimaa, 2003, p. 8). Recording each pain alleviation method that used is will help the health care providers determine appropriate and effective methods to reduce the neonate's pain.

Therefore, the NICU environment should enhance the growth and development of the neonates and support their development by providing a helpful environment that can meet physiological and neurobehavioral needs (Mitchell, Brooks and Roane, 2000, p. 4). This can be accomplished by reducing noise levels, lights, and minimizing handling. A stable, helpful environment leads to increased self-regulation and a reduced stress response; this in turn supports the neonate’s capacity to cope with pain (Mitchell, Brooks and Roane, 2000, p. 4).

There are also pharmacological interventions for pain management, such as sucrose as an analgesic. It is possible to reduce pain during and after a painful procedure by use of oral sucrose. Recently, numerous studies have shown that sucrose works safely and
effectively as analgesic for this helpless population during procedures such as heel sticks. As numerous studies have shown, pain management via pharmacology such as morphine, fentanyl, acetaminophen and local anaesthesia, are effective during major procedures (Obeidat, Kahalaf, Callister, and Froelicher, 2009, p.2).

In conclusion, painful procedures are part of the everyday care of neonates; however, as numerous studies show, there is evidence that painful feelings can impact on their later development if pain management is neglected. This paper shows how incorrect previous theories of neonatal pain are, and argues that our new understandings of pain require the development of new medications and techniques for managing pain; In addition, pain reduction should be included as an important part of nursing education. An important condition for effective pain management lies in staff manner and values in addition to their skills in promoting pain management. Further, pain assessment in premature infants should be based on suitable tools.

References


