

Neonatal Diagnosis to Explain Unusual Signs of Multisystem Inflammation

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Short Communication

Minimizing stress and pain is especially important in the developmentally unexpected, and often harsh, environment of the Neonatal intensive care units where even routine cares can be stressful, and often painful, to premature infants. From the first moments after birth, the premature infant is subjected to noxious sounds, bright lights, and a multitude of stressful and painful procedures along with repetitive, non-nurturing handling and usually, separation from mother [1]. Seemingly typical handling and caregiving by the Neonatal intensive care unit staff such as bathing, weighing, and diaper changes are perceived as stress to the prematurely born infant. This altered sensory experience is inherently stressful and has negative effects on the infant's brain development. Infants who spend their first weeks or months of life in the Neonatal intensive care unit may demonstrate a developmentally unexpected sensory stress response [2]. Exposed to painful, repeated, and unpredictable medical procedures, and possibly to physical pain or discomfort related to illness, these infants may not have consistent support from a parent or professional caregiver to provide a buffer to help them stay regulated and recover from these stresses [3]. Toxic stress has been linked to changes in the New-born and Infant nursing Reviews developing brain, negatively impacting the creation of neural connections, and this impact is likely to be more pronounced in preterm infants and particularly those without a supportive caregiver present. Neonatal intensive care unit stressors and painful interventions can raise cortisol levels, limiting neuro-plastic reorganization and therefore, learning and memory of motor skills [4]. Infants who are exposed to repeated painful experiences can have negative short-and long-term consequences for brain organization during sensitive periods of development. Adverse neurodevelopmental outcomes following neonatal intensive care are well documented. Increased exposure to procedural pain has been associated with poorer cognitive and motor scores, impairments of growth, reduced white matter and subcortical grey matter maturation, and altered cortico-spinal tract structure. Minimizing stress in preterm infants has many neurologic benefits such as reducing the likelihood of programming abnormal stress responsiveness which will help preserve existing neuro-plastic capacity [5]. Effective prevention and management of procedural and postoperative pain in neonates are required to minimize acute physiological and behavioural distress and may also improve acute and long-term outcomes. To consistently manage stress and pain in neonates, accurate monitoring of pain, as the fifth vital sign needs to be assessed utilizing a standardized pain assessment tool [6]. With the assessment of pain, comes management through pharmacologic and non-pharmacologic measures. For common painful procedures, such as heel sticks, veni punctures, orogastric tube insertions, non-pharmacological interventions should be the first choice in non-compromised infants [7]. Non-pharmacological interventions that have demonstrated efficacy are maternal presence, breastfeeding, breast-milk, Skin-to-skin-contact, sucrose, non-nutritive sucking, facilitated tucking, swaddling, and developmentally supportive positioning [8]. Maternal-related olfactory stimuli has been associated with comfort and diminished pain response in both term and preterm infants. These findings support the hypothesis that infants remember, recognize, and prefer smell that is associated with their prenatal environment

including maternal-related olfactory stimuli, auditory recognition [9]. The design of Single family rooms, where every patient room has a window can help maintain circadian rhythms for the baby, parents, and staff. Neonatal intensive care unit babies and their parents may have long stays in the hospital, and day-light supports a sense of normalcy by providing connection to the daily cycles of lights [10].

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Conflict of Interest

None

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