

Effectiveness of two pain assessment scales among Newborn babies

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ABSTRACT

INTRODUCTION: Newborn infants experience acute measurable physiologic, behavioral, metabolic, and hormonal responses to pain. They also experience long-term effects, including negative effects on neurologic and behavioral development. This is because the experience of pain occurs during a critical time of neurologic maturation.

OBJECTIVES: The objective of the study was to compare the Neonatal facial coding system (NFCS) and Neonatal infant pain scale (NIPS) among neonates undergoing procedure and to find correlation of neonate's pain with selected variables.

METHODS: This was a prospective, descriptive comparative study of a convenience sample of 60 neonates who had undergone painful procedures during the period of 3 months in NICU of R.L. Jalappa Hospital. Newborn babies were assessed for their pain severity using two validated pain scales: Neonatal Facial Coding System (NFCS) and Neonatal Infant Pain Scale (NIPS).

RESULTS: Majority (75%) of newborn babies were less than 3 days, 58.3% were males, most of the newborn babies mode of delivery was normal vaginal delivery (63.3%) and their birth weight was above 2500gm (48.37%). Of the procedures in newborn babies assessed majority underwent intravenous cannulation (50%). The mean pain score obtained on NFCS was 7.50 ± 1.20 . There was a significant positive correlation between NIPS and NFCS (0.83). There was no association between the pain scores and selected variables.

CONCLUSION: NIPS and NFCS seem to be appropriate pain scales to assess pain among newborns undergoing painful procedures.

KEYWORDS: Newborn, Pain, (NIPS) Neonatal Infant Pain Scale, (NFCS) Neonatal Facial Coding System.

INTRODUCTION

The international Association for the Study of Pain (IASP) has developed a standard definition of pain, noting that pain is always subjective; An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage.¹ Pain in the newborn and young infant is a source of stress for the infant, family and care providers. Pain is

often poorly managed because of inadequate clinical assessment.²

Neonates, both term and preterm, experience pain and have the right to receive effective and safe pain relief measures. Compared with the adult, the neonate at birth, whether term or preterm, displays a hypersensitivity to sensory stimuli. While self report, usually by using a linear analog scale, is regarded as the most reliable estimate of pain and considered the gold standard, neonates cannot verbalize their pain and thus depend on others to recognize, assess and manage their pain.³

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Common misconceptions concerning new born pain still exist and include first, the false premise that newborns do not have the neurological substrate for the perception of pain because of lack of myelination, incomplete pain pathways from the periphery to the cortex, or immaturity of the cerebral cortex; second, that newborns do not remember pain, or if they do, it has no adverse effects; third, that it is too dangerous to administer anesthesia or post operative analgesia to newborn infants.⁴ Painful neonatal experiences do have long-term consequences and even if not expressed in conscious memory, memories of pain may be recorded biologically and alter brain development and subsequent behaviour. This is consistent with laboratory studies in animal models where early injury can induce long-term behavioral and central nervous system effects which persist into adulthood.⁵ The absence of pain assessment may be due to a limited understanding of neonatal pain and to the difficulties of implementing assessments and implementing interventions for the population.⁶ As a result, procedures often are completed without assessment of pain, pain-relieving interventions or documentation of the comfort measures provided to new born.⁷ Routine procedures, such as a heel stick or blood glucose testing, IV line placement, circumcision or intramuscular injection are performed on newborn.⁸

The methods used for the assessment of painful events can be divided into three categories: measurement of physiological responses of pain, observations of behaviors related to pain, and verbal or written descriptions of pain and/or associated variables.⁸ A pain scale measures a patient's pain intensity. Validated pain scales are available for children and adults.⁹ Uses of pain assessment scales are recommended and very few reported among Indian children.¹⁰⁻¹¹ Several

neonatal pain scales have been developed to assess pain in neonates. In India, there has been little work on use of pain scales to assess pain in neonates. It will be useful to know which pain assessment scale is more appropriate to assess pain in neonates by health care professionals. In view of this the study was undertaken.

Objectives

1. To compare Neonatal Facial Coding system (NFCS) and NIPS pain assessment scale (Neonatal infant pain scale) among neonates undergoing intravenous cannulation.
2. To find correlation between neonates pain with selected demographic variables

METHODOLOGY

This was a prospective, descriptive comparative study conducted at NICU of R.L. Jalappa hospital and Research centre, Kolar. Convenience sample of 60 neonates undergoing procedures and who met the inclusion criteria of more than 38 weeks of gestation were evaluated for the pain by using two validated pain scales. Ethical clearance was obtained from institute's ethics committee and formal permission was also obtained from authorities of the Hospital. Subject data sheet was prepared based on the objectives of the study. It consisted of demographic variables and assessment of pain. Content validity was established by giving the subject data sheet to all the experts. The subjects were enrolled based on the inclusion criteria. Pain rating was done by using NFCS and NIPS pain assessment scale during the procedure simultaneously. The NIPS assesses six behavioral indicators in response to painful procedures in newborn babies. The NIPS was created and tested for use with preterm and full term neonates.¹² NIPS is a standardized and well established scale which has been validated by several researchers and is in use for assessment

II. Association between knowledge of mothers regarding Shaken Baby Syndrome and their selected socio demographic variables

There was no association between demographic variables like age, occupation, type of family, area of residence, source of information, age of child, sex of child and religion whereas educational status of the mother ($X^2 = 4.385$ t(tab) value of 3.84 at 1 df) and number of children ($X^2 = 4.759$, t(tab) value = 3.84, at df 1) was found to be significant at 0.05 level of significance. So it was evident that mothers with education and mothers having two or more children had more knowledge regarding shaken baby syndrome.

DISCUSSION

The findings of the study revealed that majority (68%) of mothers had poor knowledge regarding shaken baby syndrome. These findings were similar to a study conducted in 2 independent maternity hospitals in Ireland to assess current parental awareness of SBS and to identify the knowledge gap. Multidimensional questionnaire were distributed to 233 parents. Half of all participants had no prior knowledge of SBS, with majority of the parents expressing interest in learning more about SBS.⁸

There was statistically significant association between demographic variables like educational status of mother, number of children. So it is evident that mothers with education and mothers having two or more children had more knowledge regarding shaken baby syndrome. Various literatures have reported regarding studies on awareness and knowledge regarding SBS, but none of the studies have identified association of SBS knowledge and other variables of parents. However many studies have proved the impact of education in reducing the risk of SBS.⁹⁻¹⁰

CONCLUSION

Shaken Baby Syndrome is 100% preventable. Study findings revealed that majority of the mothers had inadequate knowledge regarding shaken baby syndrome concept. Hence a key aspect in prevention is increasing awareness of the potential dangers of shaking. Creating awareness among the mothers and caregivers on dangers of shaking is the need of the hour as the prognosis is extremely poor with mortality of around 30%; in survivals also the literature reports the rate of long term impairment at 62% to 96%. Hospital-Based and community based awareness programmes need to be planned to help new mother/parents to find ways to alleviate the parent or caregiver's stress at the critical moments when a baby is crying can significantly reduce the risk to a child.

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