

Review Paper:

Effects of Sleep and Awake States on Pain Responses in Premature Infants



Atousa Sadeghi¹, Maryam Rassouli¹, Roya Farhadi¹

1. Pediatric Infectious Diseases Research Center, Mazandaran University of Medical Sciences, Sari, Iran.

ABSTRACT

Background: More than 15 million premature infants are born worldwide each year who in average, undergo 10-16 painful procedures every day. Repeated painful procedures early in life can have adverse effects on nervous system development and pain response. Several factors may influence the response of premature infants to painful stimuli and the knowledge of these factors can lead to proper pain assessment. The aim of this study was to investigate the effects of sleep and awake states on pain responses in premature infants.

Methods: This quasi-experimental study was conducted on 100 premature infants divided into three gestational age groups (<28, 28-31, 32-36 weeks) in two neonatal intensive care units in Sari, Iran. To measure the infants' responses to the pain caused by heel prick, and to determine their physiological changes, facial and behavioral states of all infants were filmed for 30 seconds before, during, and 30 seconds after painful/non-painful procedures. The Persian version of the Premature Infant Pain Profile-Revised (PIPP-R) questionnaire was completed for each infant.

Results: The infants with 32-36 weeks of gestation who were most awake before the painful procedure (68.8%) showed the most behavioral (56.7%) and physiological changes (51.8%). The Mean±SD pain score of infants at the time of heel prick was 9.53±2.50. For the infants with less than 28 weeks of gestation, the mean sleep and wake states was 71.1% and 28.9% before painful procedure. This group had the lowest behavioral (27.8%) and physiological response (42.1%) to painful stimulus but the highest pain score (Mean±SD= 9.70±2.40).

Conclusions: The discrepancy between the results of infants with less than 28 weeks of gestation seems to depend on gestational age that is the major item of PIPP-R. Although the infants with gestational age <28 weeks experience a lot of pain, they are not able to respond appropriately to painful stimuli and hence, multi-dimensional tools for effective pain assessment is recommended.

Keywords: Premature Infant, Pain assessment, Pain Responses, Behavioral states