Pain assessment in the neonate using the Bernese Pain Scale for Neonates

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Abstract

Background: Neonates who require treatment in the neonatal intensive care unit (NICU) are subjected to many invasive painful procedures. Aims: Assessment of pain in preterm and term neonates with or without ventilation on continuous positive airway pressure using the Bernese Pain Scale for Neonates (BPSN). The validity and the reliability of the BPSN was established.

Study design and subjects: Pain assessments (n = 288) were performed by 6 health care workers in different situations of term and preterm neonates. Each neonate (n = 12) was observed in four given situations (after feeding, while a foot was being warmed, while a routine capillary blood sample was taken and 15 min after the blood sample was taken). Pain assessments were made by two nurses at the bedside using the BPSN, the Visual-Analogue Scale (VAS) and the Premature Infant Pain Profile (PIPP). At the same time, a video sequence was made which was shown later to four different nurses to assess pain using the BPSN, the PIPP, and the VAS.

Results: The construct validity of the BPSN was very good (F = 41.3, p < 0.0001). Moreover, concurrent and convergent validity of the BPSN compared to VAS and PIPP was r = 0.86, and r = 0.91, p < 0.0001, respectively. Finally, the study demonstrated high coefficients for interrater (r = 0.86–0.97) and intrarater reliability (r = 0.98–0.99). Conclusion: The BPSN was shown to be a valid and reliable tool for assessing pain in term and preterm neonates with and without ventilation.