

Neonatal General

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409 - Pain evaluation in critically ill newborn infants: eye tracking of adults' sight

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Background: The focus of attention of adults when evaluating neonatal pain is unknown.

Objective: Analyze the gaze of adults during the observation of neonates receiving intensive care and to verify if the gaze differs if adults think that pain is present.

Design/Methods: Cross-sectional study enrolling adults that observed critically ill newborns. Adults observed the newborns for 20 seconds and their gaze was tracked with Tobii Pro Glasses 2 (Tobii Technology, Sweden). At the end of this period, adults reported if the newborn was feeling pain (yes/no). Anxiety of participants was assessed by Beck Depression Inventory (present if ≥ 10). A 20-second video of the newborn with the adult's eye tracking was obtained for each adult (Figure). In each video, the investigator identified the period that the adult's gaze remained static for the longest time. At that moment, a snapshot of what was been looked by the adult was obtained and 4 areas of interest (AOI) in the neonate were defined: face, upper limbs, lower limbs, and trunk. The outcomes of visual tracking evaluated in each AOI were: number of fixations and duration of the fixations (assessed as % of the total evaluation time). Fixation was defined as the period in which the eyes were relatively still, with a minimum default duration of 60ms. Association of outcomes for each AOI with the perception of pain presence in the newborn and with adults' characteristics was tested by linear regression.

Results: 63 adults (44 health professionals and 19 parents) were studied. Each adult observed only one neonate and 27 neonates were evaluated. Newborns' characteristics: GA 32±4 weeks, birthweight 1645±1170g, 67% on CPAP/non-invasive ventilation, 33% on mechanical ventilation, 74% with central catheter. Adults' characteristics: 83% female, 35±9 years old, 40% with university education, and 14% with BDI ≥10. Pain was considered present by adults in 20/63 (32%) observations. Main outcomes are shown in the Table. Linear regression adjusted for confounders showed: 1) Being health professionals was associated with an 11.1% increase (95%CI 0.5 - 21.7) in the duration of fixations in all AOI; 2) University education was associated with a 4.6% increase (95%CI 0.9 - 8.2) in the duration of fixations and with a 4.3% increase (95%CI 0.6; 7.9) in the number of fixations in the lower limbs. Perception of pain presence by adults was not associated with outcomes. Conclusion(s): Adults take a holistic look when evaluating the pain of critically ill neonates. Being health professional and having university education was associated with a gaze more focused on the patient.

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Number and duration of adults' fixation in the neonatal areas of interest

Table: Number and duration of adults' fixation in the neonatal areas of interest

	All AOI	Face	Upper limbs	Lower limbs	Trunk
Number of fixations (%)	74.5±18.8	42.8±21.4	8.5±9.8	5.2±7.5	17.9±10.9
Duration of fixations (%)	76.9±19.8	47.6±23.9	8.2±11.4	4.5±7.4	16.5±11.8

Figure 1 - Eye tracking of one adult

