

"The EDIN pain scale administered by the mother in NICU. Validation of a new pain assessment model "

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Background

Preterm babies in NICU are exposed to acute and chronic pain. Parents are concerned about pain of their baby and this concern is associated with higher level of parental stress. Parents want greater involvement in infant pain prevention and management. EDIN scale is used by nurses to evaluate prolonged pain; this scale includes only behavioral items that are routinely observed by caregivers (parents or nurses) during everyday care (quality of sleep, facial expression, body movements, interaction with the caregivers, consolability). The aim of the present study was to evaluate the feasibility of parental involvement in the use of EDIN scale, by comparing EDIN scores attributed by mothers and nurses and by evaluating the stress level of mothers at discharge from NICU.

Research Objectives

Primary objective: to compare EDIN scores, contemporarily and blindly recorded by the attending nurse (EDIN-N) and by the mother (EDIN-M).

Secondary objective: to assess the level of mother's stress at the time of NICU discharge by the administration of the Parental Stress Scale (NICU).

Methods

Study Design

Experimental clinical prospective monocentric study in a 3rd level, 24-hour open NICU, using the NIDCAP approach.

Inclusion criteria: newborns receiving pain assessment by the EDIN scale according to our NICU protocol; obtained informed consent.

Exclusion criteria: not Italian native speaker mothers; mothers unable to stay for at least 4 hours near to their babies during at least one of the three nurse shifts (morning, afternoon or night shift).

Study phases

Within the first week of hospitalization both parents, or at least the mother, participated to a training meeting with 2 NIDCAP professionals and one nurse. During this meeting, the booklet "*How to help our children to prevent stress and pain in NICU*", supported by multimedia materials that were subsequently given to parents, was used to show parents how to recognize pain (with special attention to the items of the EDIN score) and how help to relieve it. Within 1 week from the first meeting, a second meeting was proposed to reinforce the information provided and to clarify doubts. At discharge from NICU, the mother's stress level was measured by a psychologist using the Parental Stress Scale (NICU).

Data collection and analysis

Mothers and neonatal data were collected and recorded in an Excel database file. Type of respiratory support, sedation, surgery, venous lines, feeding mode, postnatal age, painful maneuvers were also recorded.

Data were analyzed by statistical package SPSS 13.0. Non-parametric statistics was used to analyze EDIN scores that are not normally distributed. An alpha error < 5% was considered significant.

Results

Here we present preliminary data on 179 EDIN scores that were contemporarily recorded by nurses and mothers (8 mothers) in 12 newborns at a mean postnatal age of 34±15 days of life (from 11 to 70 days of life). Mean birth weight of recruited newborns was 1300±500 gr. Overall, both EDIN-N (median 0, range 0-3) and EDIN-M (median 2, range 0-12) were below the threshold of pain. EDIN-M were significantly higher compared with EDIN-N (Mann-Whitney test, P=0.000, fig. 1). The difference between EDIN-M and EDIN-N is showed in fig. 2: in 24% of cases EDIN-M and EDIN-N were identical, in 64% of cases EDIN-M was higher than EDIN-N and only in 12% of cases EDIN-N was higher than EDIN-M.

EDIN-M, but not EDIN-N, showed a positive significant correlation with painful maneuvers performed during the period of EDIN score recording (Spearman's rho, P=0.041). EDIN-N, but not EDIN-M were significantly lower (P=0.02 for EDIN-N) in the morning compared with the afternoon.

The mother's level of stress measured by the Parental Stress Scale at discharge was not statistically different from a score obtained from a comparable group of 14 mothers (71±15.6 versus 60.56 ±16.1, P=0.02) studied before the beginning of the study protocol.

Conclusions

Mothers willingly agreed to participate to the study and their level of stress at discharge was comparable with that of mothers not participating at the study. Even if both median EDIN-N and EDIN-M were below the threshold of pain, mothers scores were more *modulated* compared with nurses scores; moreover EDIN-M were more correlated with painful procedures. Nurses, but not mothers, attributed lower pain scores during the morning compared with the afternoon shift, maybe underscoring signs of pain and stress during hours with higher level of activity. Our data confirm those reported by other authors who suggested an “institutional insensitivity” of health professionals to signs of stress and pain in infants (health professionals becoming slightly habituated to patient pain signs due to extended exposure).

Main references

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Fig.1

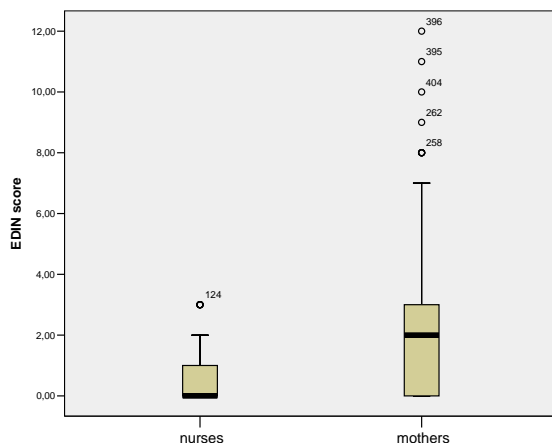


Fig. 2

