

## IMPACT OF SPONTANEOUS CRIES ON THE PHYSIOLOGICAL WELL-BEING AND THE CEREBRAL OXYGENATION OF CHILDREN BORN VERY PRETERM

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**Introduction:** Developmental care strategies imply to avoid any signs of discomfort or withdrawal in very preterm infant(VPI). Cries are major expressions of distress and can occur without any exogenous stimulation. Little is known about their effects on newborns' physiological homeostasis.

**Methods:** Environmental, behavioral data (video and audio recording) and physiological data (heart and respiratory rates-HR and RR, systemic and regional cerebral oxygenations-SaO<sub>2</sub> and rSO<sub>2</sub>) were prospectively collected during 10 hours in 18 VPI (median gestational age-GA, 28 [27-31] weeks). Only episodes of "spontaneous" cries were analysed. Changes in parameters were compared over 5 seconds periods between baseline and the 40 seconds following the beginning of cry.

**Results:** A total of 13(72%) VPIs have presented 210 episodes of "spontaneous" cries, with a median number of 9 [0-63] cries per child during the study period.

Physiological values varied significantly: a decreased mean HR (- 4.8 beats/min +/- 5.3: p < 0.01), which despite an increased mean RR (+ 5.6 cycles/min +/- 7.3: p < 0.05) results in a decreased mean SaO<sub>2</sub> (- 1.8% + / - 2.3: p < 0.05) associated with a decreased mean rSO<sub>2</sub> (- 2.5% +/- 3: p < 0.05). No significant effects of GA or of the intensity of crying on the responses were observed.

**Conclusion:** Spontaneous cries can alter the homeostasis of VPIs. Their frequent occurrences and their possible adverse consequences underline the need for a better observation of VPIs' behaviour and an adequate answer to them, which both could benefit from individualized developmental care strategies.