

Feasibility of portable capnometer for mechanically ventilated preterm infants in the delivery room

Hotta M, Hirata K, Nozaki M, Mochizuki N, Hirano S, Wada K. *Eur J Pediatr.* 2022;181(2):629-636.
doi:10.1007/s00431-021-04246-1

This study aimed to determine whether a specific portable capnometer (EMMA™) can facilitate the maintenance of an appropriate partial pressure of arterial carbon dioxide (PaCO₂) in intubated preterm infants in the delivery room. This study included preterm infants with a gestational age of 26 + 0 to 31 + 6 weeks who required intubation in the delivery room. We prospectively identified 40 infants who underwent the EMMA™ monitoring intervention group and 43 infants who did not undergo monitoring (historical control group). PaCO₂ was evaluated either at admission in the neonatal intensive care unit or at 2 h after birth. The proportion of infants with an appropriate PaCO₂ (35–60 mmHg) was greater in the intervention group than in the control group (80% vs. 42%; $p = 0.001$). There were no significant differences in the rate of accidental extubation (5.0% vs. 7.0%, $p = 1.00$) or in the proportion of infants with an appropriate PaCO₂ among infants whose birth weight was < 1000 g (54% vs. 40%, $p = 0.49$). However, among infants whose birth weight was ≥ 1000 g, the PaCO₂ tended to be more appropriate in the intervention group than in the control group (93% vs. 44%; $p < 0.001$).

Conclusion: The EMMA™ facilitated the maintenance of an appropriate PaCO₂ for mechanically ventilated preterm infants, especially infants with birth weight ≥ 1000 g, in the delivery room.