

Skin-to-skin contact in the delivery room for very preterm infants -a randomised clinical trial

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Supplementary information

The medical team at delivery

The medical teams had attended simulation-based training ¹ and/or skills training which was specifically designed to replicate delivery, infant stabilization, placing the infant in a skin-to-skin position in the delivery/operating room, and the transfer of the mother-infant pair from the operating room to the recovery unit. Checklists were developed in an iterative manner to secure adherence to existing medical guidelines and to optimize team collaboration. Two of the hospitals did not have access to full scale simulation-based training and thus multidisciplinary skills training was organized locally by the project team. The neonatal team comprised one consultant in neonatology and at least one neonatal nurse. A second neonatal nurse was present at the delivery but retreated when the infant was stabilized. If possible, a resident or fellow was present for educational purposes. A dedicated trolley with all necessary equipment, including continuous positive airway pressure (CPAP) (Infant Flow, Care Fusion), and donor breast milk was brought to the delivery room/operating room by the neonatal team.

Delivery and operating room practices

The infants were covered by a translucent isolation bag (3M Steri-Drape Isolation Bag, 1003, United States) and warm textiles for temperature preservation. Electrocardiogram (ECG) electrodes (3M, Red Dot, Canada) were placed on the infant's back (monitor Philips, MX550) and a saturation probe (EnviteC-Wismar, German) on the right hand. Infants with a birthweight <1500g were started on parenteral nutrition (Fresenius Kabi, Norway AS) via a peripheral venous catheter in the delivery/operating room. Infants with a gestational age (GA) <30 weeks received nasal CPAP by default, while infants ≥ 30 weeks received CPAP if they had signs of increased labour of breathing and/or required supplemental oxygen. Indications for surfactant (Curosurf, Chiesi Pharma AB) were an oxygen requirement >0.35 FiO₂ on CPAP and/or signs of moderate to severe respiratory distress based on the severity of chest retractions, expiratory grunting, tachypnea, and nasal flaring.² Caffeine (Peyona, Chiesi Pharma AB) was started in all infants with a GA <32 weeks, and in infants with a higher GA in case of apneas. Antibiotics were administered at the discretion of the neonatal consultant. Preferably, the midwife from the medical team helped the mother express milk to give the newborn colostrum as the first feed. Donor breast milk was given within the first hour after birth, and blood glucose was measured before the second feed. After two hours of life there was no difference between the groups regarding medical treatments. Caffeine was routinely discontinued when infants reached a PMA of 34 weeks. CPAP was weaned or discontinued at the discretion of the attending physician; either to a low-flow oxygen cannula if supplemental oxygen was needed or via high-flow-cannula. Total fluids were started at 60 ml/kg/d and increased by 20 ml/kg/d to standard 160 ml/kg/d and then adjusted to the individual infant's growth. Mothers and their partners had unrestricted access to the neonatal intensive care unit (NICU), and skin-to-skin contact was encouraged throughout the NICU stay.

Skin-to-skin

The infant was placed in a skin-to-skin position on the mother's chest shortly after randomisation. After C-section, the infant was transferred from the operating room to the recovery unit on the mother's chest at St. Olav's Hospital while in an incubator at the two collaborating hospitals. During transfer, the neonatal medical team supported the infant, and a midwife and an anesthesiologist supported the mother. After completion of checkpoint 2 (Figure 1), the neonatal consultant could leave in agreement with the neonatal nurse in charge of the infant. The consultant and a resident/fellow were easily available at short notice.

Standard care

After initial stabilization and completion of checkpoint 1 (Figure 1), infants randomized to standard care were transferred to the NICU in an incubator along with the partner, if available, and the neonatal medical team. Checkpoint 2 (Figure 1) was completed upon arrival in the NICU.

- 1 Kristoffersen L, Stoen R, Rygh H, et al. Early skin-to-skin contact or incubator for very preterm infants: study protocol for a randomized controlled trial. *Trials* 2016;17:593.
- 2 Reuter S, Moser C, Baack M. Respiratory distress in the newborn. *Pediatr Rev* 2014;35:417-28; quiz 29.