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Integrated neonatal support on placental circulation with resuscitation (iNSPiRe): A feasibility study

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Background: Compromised neonates do not receive placental transfusion (PT) as they are deemed to require resuscitation. Animal studies suggest possible benefit of resuscitation during PT.

Objective: To study the feasibility of initiating resuscitative care during PT for 90s in preterm infants.

Design/Methods: We designed a mobile, battery-powered resuscitation platform (iNSPiRe) that contains a scale, warm gel mattress, oxygen and air tanks, blender, T-piece resuscitator, pulse oximeter (PO) and electrical suction device. Resuscitative care included positioning neonate supine, opening the airway, suctioning, drying, and stimulation. Thermoregulation was maintained using a hat, warmed blankets and gel mattress. Respiratory support was initiated at 30s following Neonatal Resuscitation Program guidelines. Preductal oxygen saturation was continuously monitored. Heart rate was documented via auscultation at 30, 60 and 90s. The cord was clamped at 90s. The baby and platform were mobilized from mother's bedside to a radiant warmer in the same room by one provider, while another provider maintained respiratory support. Axillary temperature (AT) was obtained after the baby is transferred to the radiant warmer. Resuscitation interventions and management during first 24 hours were documented.

Results: Six infants born vaginally, median (range) gestational age was 31 weeks (30-36) and birth weight 1655g (1380-2650), were managed using iNSPiRe during PT. 4 received continuous positive airway pressure (CPAP) on iNSPiRE. None received positive pressure ventilation, had hypotension, pneumothorax, or received surfactant.

Conclusions: It is feasible to commence resuscitative care during PT in infants ≥ 30 weeks' gestation for 90s. Further research is needed to assess the feasibility in smaller and sicker preterm infants.

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Is MRI a viable alternative to ultrasound in the diagnosis of pediatric appendicitis- A systematic review

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Appendicitis is the most prevalent cause of acute abdominal pain in children requiring surgical intervention. The global incidence of appendicitis increases from 1-2 cases per 10,000 children aged less than 4 years to 25 cases per 10,000 children aged 10-17 years. The atypical symptoms presentation of appendicitis in children means a substantial number of cases may be misdiagnosed if diagnostic pathway relies only on clinical examination and laboratory investigations. The primary aim of this systematic review is to determine the diagnostic accuracy of MRI in determining the presence of appendicitis in children following an inconclusive ultrasound examination and established whether Gadolinium adds value to diagnostic process. A secondary aim was to determine the average scan time and optimal diagnostic sequence for MRI examination of children with suspected appendicitis. A systematic literature review was undertaken to identify primary research studies. A search of Medline, Cinahl, PubMed Central and Google Scholar was undertaken and supplemented by review of reference lists, author searching and review of NICE evidence base for existing guidelines. Seven primary articles were identified and included in the systematic review article. Pooled sensitivity and specificity estimates from the included studies showed a range of values for MRI in pediatric appendicitis. Pulse sequence, scan time, contrast agent and other MRI parameters were extracted from the included studies. MRI can offer a viable alternative to pediatric appendicitis cases where ultrasound becomes indeterminate or a primary imaging tool where availability is guaranteed round the clock.

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