An Innovative Warmer-cradle for Neonatal Resuscitation with Intact Placental Circulation (RIPC)

Dr. S. Thanigainathan¹, Dr. S. MangalaBharathi¹, V. Sashikumar²

¹Institute of Child Health & Hospital for Children, Madras medical College, Chennai, India
²Phoenix Medical Systems, Chennai, India

Abstract no:A210

Birth asphyxia is the third most common cause of neonatal mortality. Resuscitation of the baby without clamping the umbilical cord allows continuous supply of oxygen, 30% of the blood volume and stem cells from the placenta to baby. Hence Resuscitation with Intact Placental Circulation (RIPC) is a promising intervention to reduce the incidence and severity of asphyxia. RIPC is not possible with the conventional warmer due to its unfavorable design. Hence developed a low-cost warmer which can be positioned near mother’s perineum to facilitate RIPC without compromising on the space for the delivery team.

RIPC Warmer

Compact Quartz IR Heater

A Wireless dockable 7” Display unit mounted on a Sleek Pillar

Displayed Parameters - Heater output, FiO₂, PIP, PEEP, SpO₂, HR, Baby temperature and APGAR Timer.

Rotating and sliding 600x350 mm Baby cradle with Phase change material based Warming mattress, that could reach the Mother’s perineum/incision site

T-piece Resuscitator with Electronic blender and Suction to facilitate resuscitation without cutting the cord.

5L Capacity Air & Oxygen Cylinders

T shaped base and Motorized Height adjustable pillar for Convenient positioning

Patent No: E-2/3611/2016/CHE.

Real clinical scenario of RIPC warmer in LSCS

Recommended position of the RIPC warmer

Caesarean delivery

Vaginal delivery

Functional and safety aspects of the RIPC warmer was tested in 20 uncomplicated newborn babies in normal vaginal delivery, instrumental delivery and caesarean delivery. The warmer can be used for RIPC, routine neonatal care and in-hospital neonatal transport. A complete service evaluation study in the real clinical scenario is ongoing with the target of providing RIPC to 100 babies requiring resuscitation at birth.

Dr. S. Thanigainathan: thanigaipaeds@yahoo.com, Dr. S. MangalaBharathi: drmangalabharathi@gmail.com, V. Sashikumar: sashi@pmsind.com