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Non-invasive respiratory support of neonates: The non-traumatic way forward!

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The quality of care in a Neonatal Intensive Care Unit (NICU) is judged by the standards of respiratory care the babies receive in the unit and the bedside care therein is given by the surrogate mothers of the tiny tot in the baby cot (incubator) read the NICU sisters. Appropriate and up to date technologies of respiratory support are the aces up the sleeves of the neonatologists that ensure intact survival of premature babies against the odds of barotraumas, volutrauma, bio-trauma etc. The level of escalation of respiratory support of neonates extends from oxygen therapy to continuous distending airway pressure devices, surfactant, nasal positive pressure ventilation, intubation and ventilation (including high frequency oscillation) and Extra-Corporeal Membrane Oxygenation (ECMO). Keeping the lungs expanded to prevent atelectrauma is a key strategy in neonates as this conserves surfactant and this support starts from the delivery room for premature babies. Disruptions of airway mucosal integrity and mucociliary function have deleterious consequences and hence gentle strategy of respiratory support avoiding intubation to the extent possible is advocated. High Flow Nasal Cannula oxygen (HFNC) therapy aims to minimize even the nasal mucosal injury that can happen with the current nasal respiratory support devices. Although the threshold for surfactant therapy varies between NICUs, the earlier is better and the aim is to keep the FiO_2 below 0.3 or 0.4. The INSURE (INTubate, Surfactant and Extubate) was evolved earlier to minimize the duration of intubation needed to administer surfactant. Earlier in this decade even this has been replaced by the Minimally Invasive Surfactant Therapy (MIST) wherein surfactant is administered using a no intubation technique. Dubai has a published report on MIST in our NICU recently. The evidence base and meta-analysis have attested to the superiority of non-invasive respiratory support strategies and the initial follow up data available in the literature is encouraging.

Biography

Karthikeyan Gengaimuthu is a Senior Consultant Neonatologist currently working in International Modern Hospital, Dubai. He has completed his MBBS from Madurai Kamaraj University, Madurai and MD in Pediatrics from JIPMER, Pondicherry.

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