Changing Paradigms in Neonatal Care

Ballambattu Vishnu Bhat¹

Received: 6 September 2021 / Accepted: 21 November 2021 / Published online: 21 January 2022
© Dr. K C Chaudhuri Foundation 2021

Prematurity, sepsis, and asphyxia are important causes of neonatal mortality in India [1, 2]. In this special compilation of reviews, vital issues from delivery room to follow-up are covered. Science and research should help in improving the quality of life in any part of the world irrespective of race, religion, and socioeconomic status of the population. We have earlier published the first part of the symposium. Review articles in this second part of Neonatology symposium will go a long way in improving the neonatal care in India and other countries.

Good antenatal care, effective resuscitation at birth, and appropriate transfer of high-risk newborns can bring down neonatal mortality and morbidity, especially from perinatal asphyxia. The guidelines for resuscitation keep changing, based on fresh scientific evidence. The timing for umbilical cord clamping after birth and concentration of oxygen to be given during resuscitation are matters of concern. Soraisham et al. have discussed in detail the present recommendations for resuscitation with delayed cord clamping and monitored delivery of oxygen [3].

Sepsis is an important cause of neonatal mortality in developing countries. The type of organism and the risk factors vary from place to place. Bethou et al. have brought out some of the newer concepts in the management of neonatal sepsis. Antibiotics are the mainstay of treatment for sepsis. Indiscriminate use of antibiotics will result in drug resistance. Appropriate use of antibiotics and antibiotics stewardship will reduce resistance to drugs. However, in advanced cases with surge in inflammatory mediators and ensuing damage to end organs, anti-inflammatory medications as adjunct to antibiotics therapy may be beneficial. Animal models with sepsis have shown benefit from anti-inflammatory drugs but evidence from human beings is lacking. Supplementation of trace elements like zinc is

beneficial in preventing and reducing mortality from sepsis among neonates, especially those with preterm and low-birth-weight infants [4].

Vegda et al. have discussed in detail the diagnosis and management of neonatal convulsions. It is one of the commonest neonatal emergencies with associated adverse neurodevelopment outcome. Most of the convulsions are brief and short-lived but occasionally they can be a matter of concern. One of the important causes for reversible convulsion is metabolic abnormality. If high-risk newborns are identified and monitored, most of them could be prevented. Early diagnosis and appropriate management can reduce the mortality and morbidity from neonatal convulsions [5].

It is a dilemma for both the treating physician and parents when the infant suffers from a terminal illness. Decision to withdraw life-support and providing palliative care are important issues. Often the guidelines are not very clear and certain situations may not have a definite answer. In the absence of guidelines, a group of experts with family members have to discuss and decide about the action to be taken. Stuti Pant has discussed some of these issues and suggested measures to overcome them [6].

Vipulaguna et al. have reviewed the issue of early identification of high-risk newborns requiring developmentally supportive care. Although neonatal mortality has decreased considerably with advanced facilities over the years, children requiring special care also have increased. If these infants are identified early in life and provided with stimulation and supportive care, they can become less dependent later in life [7].

Nitric oxide therapy has been extensively used among term infants with persistent pulmonary hypertension (PPHN) with good results. Using the outcome among term babies, many centers started treating preterm infants with poor oxygenation using nitric oxide. But the results are not encouraging and randomized controlled studies failed to show better outcome with nitric oxide use. It may cause harm in some cases. Stritzke et al. in this issue discussed the pros and cons of using nitric oxide among preterm infants. There is an increased risk for intraventricular hemorrhage

✉ Ballambattu Vishnu Bhat
drvishnubhat@yahoo.com

¹ Department of Pediatrics and Neonatology, Aarupadaiveedu Medical College and Hospital, Vinayaka Mission's Research Foundation -DU, Puducherry 607403, India

and neurodevelopmental delay among preterm infants treated with nitric oxide. Nitric oxide may benefit only those selected preterm infants with PPHN due to pulmonary hypoplasia or bronchopulmonary dysplasia [8].

We hope that efforts of the authors, reviewers and editorial board members will go a long way in improving the outcome of infants who are our future wealth.

Declarations

Conflict of Interest None.

References

1. Sankar MJ, Neogi SB, Sharma J, et al. State of newborn health in India. *J perinatol*. 2016;36:S3–8.
2. Bora JK, Saikra N. Neonatal and under-five mortality rate in Indian districts with reference to Sustainable Developmental Goal-3: an analysis of the National Family Health Survey of India (NFHS-4), 2015–16. *Plos One*. 2018;13:e0201125.
3. Soraisham AS, Srivatsava A. Recent updates in neonatal resuscitation. *Indian J Pediatr*. 2021. <https://doi.org/10.1007/s12098-021-03796-4>.
4. Bethou A, Bhat BV. Neonatal sepsis-newer insights. *Indian J Pediatr*. 2021. <https://doi.org/10.1007/s12098-021-03852-z>.
5. Vegda H, Krishnan V, Variane G et al. Neonatal seizures-perspective in low- and middle- income countries. *Indian J Pediatr*. 2021. <https://doi.org/10.1007/s12098-021-04039-2>.
6. Pant S. Ethical issues around death and withdrawal of life support in neonatal intensive care. *Indian J Pediatr*. 2021. <https://doi.org/10.1007/s12098-021-03810-9>.
7. Vipulaguna D, Jahan I, Girish M, et al. Early interventions for infants at risk for developmental impairment: The south Asian perspective. *Indian J Pediatr*. 2021. <https://doi.org/10.1007/s12098-021-03871-w>.
8. Stritzke A, Bhandari V, Lodha A. Use of inhaled nitric oxide in preterm infants: is there sufficient evidence? *Indian J Pediatr*. 2021. <https://doi.org/10.1007/s12098-021-03827-0>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.