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EDITORIAL COMMENTARY

# Preventable Calamity: Respiratory Syncytial Virus Infection in Preterm Infants with Bronchopulmonary Dysplasia

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It is time to reminisce the popular adage: "Prevention is better than cure."

Incidence of nearly 60% has been documented for illness due to respiratory syncytial virus (RSV) in under-5 age group, reflecting high disease burden [1]. With availability of modern neonatal care facilities in the country, comes improved survival; which in turn creates new challenges. Despite contemporary ventilation techniques, nutrition care policies and infection prevention methods; bronchopulmonary dysplasia (BPD) is sometimes inevitable in the smallest preterm neonates. Risk of severe disease due to respiratory syncytial virus (RSV) is inherently higher in infants with BPD. There is significant association between BPD and acute RSV-lower respiratory illness (LRI) requiring readmission and long intensive care [2].

Geography specific epidemiological descriptions of RSV disease in the high-risk group that constitutes BPD are essential to understand magnitude of the problem. D'Cruz et al. in this issue of the journal have reported findings of their prospective study that analyzed incidence of RSV related LRI in preterm infants < 32 wk with BPD [3]. Even though the sample size is small, the authors' findings emphasize that the challenge is real, substantial and needs to be addressed head on. Interestingly, the data represents the period when COVID-19 lockdown was in place. There are reports from other parts of Asia that emphasize the increase in viral disease transmission after social restrictions of COVID-19 were lifted [4]. Moreover, the classical descriptions of seasonal variation in RSV transmission dynamics seen in the Western hemisphere are likely to be less evident in our country which is close to the equator. India contributes to the maximum number of preterm births; we stand to benefit from any strategy that would reduce RSV related illness in high risk infants with BPD. Until very recently, monoclonal antibodies for passive protection were not available in India. Since the era when Gupta et al. concluded that infants at high risk of RSV pneumonia would still be at risk of acquiring other more common viral and bacterial infections and deemed the intervention cost-ineffective in India; times have changed [5].

In families with other members (school-going siblings) who are potential sources for infection, maternal vaccination alone would not suffice. Moreover, this strategy of vaccination in late third trimester would not protect the most vulnerable extreme preterms who are devoid of transplacentally transmitted maternal antibodies. Palivizumab, a short acting monoclonal antibody for use in high risk infants, derived by recombinant technology has been available for several decades in high income countries. The drug, given once monthly (5 doses total), is commenced before RSV season or when the infant is at high risk. A practical approach would be to give the first dose (15 mg/kg intramuscular) during NICU stay once a reasonable degree of clinical stability is achieved. After the 5 monthly doses, a further dose can be given if required. Thorough planning is warranted to avoid wastage. Shared costing is an option as one vial may suffice for 2 babies at a time. Nirsevimab which is given as a single dose is a recently developed molecule with long half-life, high potency and good safety profile. Although costly, a recent cost based review concluded that the drug was clinically efficacious in terms of reduction in hospital admissions and need for intensive care [6]. Primary goal is to reduce hospital admissions, need for intensive care and subsequent adverse effects of RSV disease on long term health among infants with BPD by protection during the most vulnerable first year of life. These above strategies seem to do exactly that.

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Advances in neonatal intensive care per se should parallel efforts to reduce consequences of prematurity even after acute care is completed. It is indeed imperative that implementing preventive measures for RSV infection in BPD infants takes high priority.

## Declarations

**Conflict of Interest** None.

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