

Urgent Need of Research on Neurodevelopmental Outcome of Preterm/ Very Low Birth Weight Neonates From India

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Preterm birth varies from 8.7-13.4% globally and nearly 15 million preterm babies are born annually, of which 60% births are in Africa and South Asia [1]. India contributed about 3.1 million births in this cohort and which accounts to nearly 23.4% of global burden of preterm birth [2]. With improving facilities, training, infrastructure and newer technologies, there is increasing survival of preterm neonates across the globe including India which recorded a 40-60% reduction in preterm mortality between 1990 to 2019 [1].

These preterm neonates are at high risk of neurodevelopmental disabilities, almost 5-10% of very low birth weight (VLBW) babies have major sequelae like cerebral palsy (CP) while 25-50% have various cognitive and behavioral issues and lower academic performance [3-6]. An Italian cohort of preterm VLBW infants showed normal neuro-developmental outcome in 75.3% and the rest had minor (13.9%) and major sequelae (10.8%) including 3.8% CP [3]. The Neuroprem study reported 12.5% severe disability and 4.5% cerebral palsy rate among preterm VLBW infants (23-33 weeks gestation) at 24 months corrected age [5]. Epipage-2 cohort of preterm babies had severe to moderate disabilities in 36% cases at 27-31 weeks gestation and in 34% at 32-34 weeks gestation. Behavior was a major concern for most parents [6].

With nearly 25 million births and approximately 13.6% (11.1-16.1%) prematurity rate in India, a large number of preterm babies are born every year who needs a very long-term neurodevelopmental follow up however there are very scanty reports from India. A systematic review from resource limited set ups reported 21.4% neurodevelopmental impairment, 16.3% cognitive impairment, and 11.2% CP among preterm/low birth weight and very low birth weight infants; however, it included only three studies from India [7]. Another meta-analysis and systematic review from South Asia among low birth weight children showed significantly lower motor and cognitive scores as compared to normal birth weight children. This study included ten studies from India, but they included mostly

low birth weight children and who were less than 2 kg [8].

We reported 3% CP, 11% gross motor delay and 8% language delay among our VLBW (≤ 1500 g) and preterm (≤ 34 week gestation) cohort at 18 months corrected age. In this cohort, 17% had a score of less than 70 in MeDQ and 25.7% in MoDQ and 84% had high behavioral scores [9].

Preterm small for gestational age (SGA) children are more at risk of neurodevelopmental disabilities due to double whammy of prematurity and growth retardation. In our country nearly 30% are LBW and some are preterm too. Murki, et al. [10] reported neuro-development at 12-18 months of corrected age among preterm (< 35 week) small for gestational age (SGA) infants and found higher incidence of motor and mental delay as compared to preterm appropriate for age (AGA) infants. We also observed 24% had low DQ (< 90) and 74% had average and above average DQ (> 90) among ≤ 1250 grams cohort at CA 18 months. SGA infants had significantly higher risk of low scores [11]. Sacchi, et al. [12] also reported in a systematic review and meta-analysis, higher cognitive impairments among the children who were preterm and SGA. Gupta, et al. [13], in this issue of *Indian Pediatrics*, report neurodevelopmental disabilities and growth failure in VLBW neonates at 1 year CA, thereby highlighting the need for long-term follow up.

Hence, VLBW infants (AGA and SGA both) need long-term follow up for early detection of neurodevelopmental disabilities including hearing screening and ophthalmological evaluation and early intervention by a team of multispeciality experts. There is a need for a collaborative and systematic data collection from various NICUs as well as from SNCUs in our country, and assessments should be carried out with standardized scales so that uniformity of data can be maintained. Adequate and appropriate data collection and reporting will help to compare the data over the years and quality of care can be improved accordingly.

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