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Neuro-Developmental Trajectories of a Cohort of Preterm Babies Born at Teaching Hospital, Jaffna

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Introduction Preterm babies are more likely to develop cognitive, language and motor deficits.

Objectives To analyse the neuro-developmental attainments of the babies followed upto 18 months and to identify selected risk factors contributing to neuro-development.

Method An institution-based cohort study was done among a calculated sample of 167 neonates with 28+1 to 36 +6 weeks gestation at Teaching Hospital, Jaffna. Neuro-development assessment was done using the Bayley Infant and Toddler III assessments at 3, 6, 12 and 18 months of their corrected age for gestation during home visits. Ethical clearance was obtained from the Faculty of Medicine, Jaffna.

Results The median gestational age was 35.0 (± 1.9) weeks. Majority were males (n=92, 55.1%), born at moderate to late preterm (n=156, 93.4%) and delivered via caesarean (n=123, 73.8%). Medical outcome as short term complications (n=46, 27.5%), admitted to neonatal intensive care unit (n=69, 41.3%), discharged with complication related to prematurity (n=30, 18%) and re-hospitalized within 18 months (n=36, 21.6%) were seen. Trends of composite score of the cognitive domain increased from 3 to 6 months, and continued to decrease till 18 months ($p < 0.001$), and language domain increased from 3 to 6 months and decreased at 12 months, and increased at 18 months, ($p = 0.529$), while motor domain increased from 3 to 6 months, and continued to increase till 18 months ($p < 0.001$). Developmental age was less than the chronological age in all 3 domains for all the babies. Significant neuro-developmental delay was identified in 11 babies (6.6%). The risk factors considered for neurodevelopmental delay were children of employed mothers (OR: 1.354), born at very preterm (OR: 1.460), treated for short-term complications (OR: 2.337), admission to NICU (OR: 2.653), Hospital stay >2 weeks (OR: 1.317), discharge from hospital with complications related to prematurity (OR: 2.857) and re-hospitalization within 18 months (OR: 7.664). Neuro-developmental delay had statistically significant association with re-hospitalization ($p = 0.002$).

Conclusion Short-term complications influenced the neuro-development of preterm babies. Catch up in motor domain of moderate to late preterm babies were observed.