

Long-Term Neurodevelopmental Outcomes of Premature Infants in Singapore

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Abstract

Introduction: Neonatal care advances have resulted in improved survival but have raised concerns of increase in neurodevelopmental impairment. This study looked at long-term neurodevelopmental outcomes at ages 5 and 8 years of very low birthweight infants born in the 2000s as compared to the 1990s. Neurodevelopmental assessment at 2 years old was compared to that at 5 and 8 years to determine if assessment at 2 years was predictive of later outcomes. **Materials and Methods:** A retrospective cohort study of consecutive infants with birthweight less than 1250 grams admitted to a tertiary centre in Singapore between January 1994 to December 1995 (Epoch I) and January 2004 to December 2005 (Epoch II) were included. Neurodevelopmental impairment was defined as having an intelligence quotient (IQ) of less than 70, cerebral palsy, legal blindness, or hearing impairment requiring hearing aids. **Results:** Mean gestational age was lower for Epoch II compared to Epoch I (28.1 ± 2.5 vs 29.4 ± 2.7 weeks, $P = 0.004$). Death or neurodevelopmental impairment rates did not differ (24.3% and 17.1% at 5 years old, $P = 0.398$; 29.1% and 25.0% at 8 years old, $P = 0.709$). There was improvement in visual impairment rate at 8 years in Epoch II (10.7% vs 34.0%, $P = 0.024$). Mean IQ was better in Epoch II (109 and 107 vs 97 and 99 at 5 [$P = 0.001$] and 8 years [$P = 0.047$], respectively). All infants with no neurodevelopmental impairment at 2 years remained without impairment later on. **Conclusion:** Over a decade, neurodevelopmental outcomes did not worsen despite lower mean gestational age. Long-term improvement in IQ scores and a reduction in visual impairment rates were seen. Our data suggests that children without neurodevelopmental impairment at 2 years are without impairment later on; therefore, they may need only developmental monitoring with targeted assessments instead of routine formal IQ assessments.

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