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Changing trends in cerebral palsy prevalence: An opportunity to consider etiological pathways

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Cerebral palsy (CP) is often accompanied by severe comorbidities and causes challenges to those affected, their families, and health services. Hence, any decreases in the prevalence of CP at the population level would be welcome news. Reports of a decreasing trend in CP prevalence in parts of Europe between the 1980s and the early 2000s¹ were greeted with cautious optimism because prevalence could rebound in specific subgroups, including children born extremely preterm.² Evidence of an overall prevalence decrease in other areas of the world in recent years would offer reassurance of a sustained decline. Smithers-Sheedy et al. provide such evidence in a comprehensive description of pre- and perinatally acquired CP trends in Australia.³ Capitalizing on an excellent resource, the nationwide Australian Cerebral Palsy Register, the authors report a one-third reduction in the prevalence of CP at 5 years of age between 1995 and 2014 in singleton children. The decline was evident in all gestational age groups, although it was somewhat more pronounced in children born extremely preterm. In this group, and among children born at term, there was a decrease in moderate to severe CP. While the prevalence of bilateral spastic CP, the most common type, decreased, the prevalence of both dyskinetic and hypotonic CP appeared to increase. Importantly, any concomitant changes in child mortality do not obscure these findings because deceased children with known CP were included in the numerators.

The authors attribute the declining trends in pre- and perinatally acquired CP prevalence to the concurrent implementation of measures that improve maternal and perinatal health. Among children born extremely preterm, who are at the highest risk of CP, measures may involve prenatal corticosteroids to enhance lung maturation, delayed cord clamping, magnesium sulfate to prevent brain injury, and specific

changes in neonatal intensive care unit practices. Although the total and direct effects of these interventions on the incidence of CP may be challenging to prove at the population level, evidence on indirect effects is closer at hand since they are primarily aimed at preventing brain injury from asphyxia and asphyxia-related neonatal morbidities mediate most of the effect of extremely and very-preterm birth in CP.⁴ Among children born at term, who are the majority of those with CP, early detection of conditions leading to ischemic brain damage, and the advent of therapeutic hypothermia of infants with hypoxic-ischemic encephalopathy, may have played a role.

The increasing prevalence trends in dyskinetic CP, a type more common in children born late preterm and term rather than extremely preterm, are difficult to explain. Consideration of potential distal causes may offer clues. For example, dyskinetic CP is the motor type most strongly associated with maternal obesity in children born at term,⁵ and the prevalence of obesity in Australian females of reproductive age increased during the study years. This does not preclude other possible explanations including enhanced identification of children with dyskinetic CP, as the authors point out.

Documenting a decline in the prevalence of CP is salient from clinical, public health, and societal perspectives, and may also offer opportunities for research into the etiology. The potential effects of emerging interventions could be estimated using quasi-experimental study designs. Continued surveillance and expanding research efforts on CP epidemiology in low- and middle-income countries should remain important priorities in this field.

DATA AVAILABILITY STATEMENT

Not required.

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Low rates of motor-related healthcare for 5-year children born extremely preterm with movement difficulty: Where to next?

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Children born extremely preterm (<28 weeks' gestation) are at increased risk of a range of poor health and developmental outcomes compared with children born at term.¹ While research on motor outcomes for children born extremely preterm has previously focused on cerebral palsy (CP), a broader trend in the literature is now exploring non-CP motor impairment, such as developmental coordination disorder (DCD). Consistent with this trend, Costa et al. highlight the high rates of non-CP motor impairment for children born extremely preterm.² Their study also draws attention to the proportion of children receiving motor-related health care, such as physiotherapy, occupational therapy, or early intervention services, which was both concerning low and highly variable between and within the 11 European countries included in the study.²

As children born extremely preterm with non-CP motor impairment are not consistently accessing motor-related health care,² the next question should be 'why?'. This paper discussed some hypotheses that provide possible future research directions worth pursuing, including the extent to which clinical practice guidelines are being met, as with a better understanding, services can be adapted to provide better outcomes for this cohort.

Of particular interest, Costa et al. question whether the health beliefs of parents and health care providers, on movement difficulties and the need and/or availability of motor intervention, influenced rates of health care service use.² Further investigation into how health beliefs might

influence access to therapy is warranted as motor impairment does not just influence motor skill performance, but has negative implications for physical activity participation (and health outcomes associated with inactivity), quality of life, education, and mental health.³ Motor skills play an important role in facilitating participation in a range of activities, including self-care, educational-related tasks (such as handwriting), and play with friends. This is an important consideration for children born extremely preterm who are at increased risk of a range of poor outcomes across diverse domains, including cognitive, social, and behavioural outcomes,¹ which may compound the negative effects of motor impairment.

Intervention has shown promise for improving motor outcomes for young children with DCD.³ However, children born extremely preterm with non-CP motor impairment likely present with more complex health and developmental outcomes compared with children with non-CP motor impairment who were born at term. For example, individuals born extremely preterm are at greater risk of impaired lung function throughout their lifespan, as well as poor cardiometabolic health and low bone density as they reach late adolescence and adulthood.¹ Children born extremely preterm are more likely to have cognitive impairment or behavioural challenges than children born at term.¹ While DCD research is important and informative in this area, we should not assume

This commentary is on the original article by Costa et al. on pages 1131–1144 of this issue.

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