Beyond neonatal mortality: Contribution of perinatal conditions to cerebral palsy in Uganda

Hassell J[1], Tann C[1], Nakibirango M[2], Idro R[2]

1. University College London, London, UK
2. Makarere University College of Health Sciences, Kampala, Uganda

Background:
Worldwide an estimated 93 million children are disabled, including those with cerebral palsy (CP); 80% live in low income countries. Cohort studies in high-income countries attribute >50% of CP to prematurity or antenatal causes. These data are difficult to obtain in low-resource settings, where neonatal mortality is high and an estimated 1 million survivors of term neonatal illness develop CP and other neurological sequelae every year.

We hypothesised that term neonatal illness including neonatal encephalopathy would be a major contributor to the burden of CP in an East African setting. We investigated the aetiological distribution of CP in affected children presenting to Mulago tertiary referral hospital, Kampala, Uganda.

Methods:
One hundred and thirty children <18 years with CP presenting over an 8-week period were recruited from all in- and out-patient Paediatric services. Assessment involved (i) Detailed retrospective history from the primary caregiver, including any self-identified antecedents to the onset of motor impairment, and (ii) Neurological examination to assign CP subtype and assess severity of impairment. Neuroimaging was not available.

Results:
Median age was 17 months (interquartile range 9,29), 56% were male. Seventy-eight percent (101/130) had bilateral spastic CP, 11% (15/130) unilateral spastic CP, 11% (14/130) dyskinetic CP. Two thirds (68%, 89/130) of caregivers gave a history consistent with term neonatal encephalopathy or sepsis, three quarters (76%, 99/130) attributed their child's CP to severe term neonatal illness [table], with history of hospital admission. Two children were HIV positive.

Attributed cause for CP	**N (%)**
Prematurity	8 (6)
Neonatal encephalopathy at term, with or without infection	75 (58)
Neonatal sepsis at term, well at birth	14 (11)
Neonatal at term jaundice	7 (5)
Other neonatal illness at term	3 (2)
Post-neonatal central nervous system infection	12 (9)
Other/unknown	11 (9)

Conclusions:
In this retrospective questionnaire-based study, 76% of caregivers attributed their child's cerebral palsy to severe term neonatal illness. Although a single tertiary centre rather than population-based study, these data contrast with the estimated 10% of CP attributed to term neonatal illness in high-resource settings. Intrapartum and newborn care are key priorities for the prevention of CP in this East African setting.

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