An Insight into the Risk Factors for Cerebral Palsy in Pakistan

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Cerebral Palsy (CP) is a neurological condition that primarily involves posture, movement, and muscle tone due to the formation of brain lesions during fetal, infancy, or early childhood developmental periods. (1) Etiology of CP is complicated, inimitable, multifactorial, and not very well-established. A risk factor is a behavior, characteristic, and condition that increases the possibility of getting a disorder or injury and can be categorized as behavioral, demographic, environmental, genetic, and physiological. Several risk factors for CP have been reported by worldwide scientists including cerebral anoxia, consanguinity, genetic anomalies, home delivery, hypoxic-ischemia, microcephaly, intrauterine growth restriction, infections, monozygotic twins, white matter injury, germinal matrix hemorrhage, smaller gestational age, and more. These risk factors manifest during the fetal, infancy, or early childhood developmental periods.1 There may be involvement of more than one risk factor in developing CP in a child thereby, careful consideration of causal pathways is necessary rather than just a single causal event in a CP-inflicted child. (2) If saving a baby's brain is a priority, understanding what damages their nervous system, when, and how is a primary step to prevent CP.

CP is a major cause of neuro disability in Pakistan and males are prone to acquire CP. (3) Pakistan is a developing country that has the 5th largest population in the world with nearly 220 million people but unfortunately, the data on CP is scant due to an unstructured healthcare system. The risk factors of CP in Pakistan have been explored in a few studies. Bangesh et al., identified that home delivery, consanguinity, and infections during pregnancy were the dominant risk factors for CP. (4) Ali et al., reported birth asphyxia and central nervous system infections due to poor antenatal and natal care. (5) Khan et al., reported birth asphyxia, kernicterus, meningoencephalitis, and prematurity. (6) Keramat et al., reported birth asphyxia, consanguinity, jaundice, high-grade fever, maternal anemia, and vaginal delivery. (7) Khan et al., reported maternal anemia, low birth weight, and pregnancy-induced hypertension. (8) Previously, we identified fetal distress, hydrocephaly, low birth weight, maternal issues, microcephaly, placental insufficiency, periventricular leukodystrophy, periventricular leukomalacia, prematurity, Rh incompatibility, and TORCH infections were the prevalent risk factors in the majority of CP cases. (9) But these limited studies are not representative of the national estimate of prevalent risk factors of CP in the country. The pathway to CP can only be interrupted if a prevalent risk factor is known.

Hence, there is an urgent need to collate the data on CP from different cities in Pakistan. The data on prevalent risk factors can help in the formulation of health policy and specific allocation of resources for early diagnosis and management of CP in the country. There must be induction of an integrated manual or electronic database in the healthcare system of Pakistan to record the comprehensive data of CP-inflicted patients to determine prevalent risk factors. Efforts of the Pakistani government along with social and healthcare workers to collect door-to-door data on CP can help in determining the prevalent risk factors to save future generations.

Competing interests
None to declare.

Funding
None to declare.

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