

TAMING THE SCOURGE: PANACEA FOR THE DREADED BRAIN CATASTROPHE

An inaugural lecture delivered by Professor IkeOluwa A. Lagunju

ABSTRACT

Human brain development is a protracted process which begins in the third week of conception ever before a woman realises that she is pregnant. This process generates the most complex structures within the embryo and the long time period of development implies that in utero insult during pregnancy may have major consequences on the development of the nervous system.

It has long been recognised that the developing brain is peculiarly vulnerable to modification by environmental factors and because the child's brain is still growing, it is especially vulnerable to injury. The first two years of life represents the period of maximal brain growth in a child's life. The pattern and magnitude of abnormalities resulting from the injury during this period, will depend on the genetic variability, as well as the timing, intensity and duration of the adverse environmental experiences. The end results include gross structural distortions or destruction of the brain, reductions in brain volume, abnormal behavioural and neuroendocrine regulation and poor cognitive outcomes which persist during childhood into adolescence and later, adult life. The consequences of these insults to the brain are often catastrophic for the affected child and the family and the diseases/disorders resulting from these adverse events have been the thrust of my research in the last 15 years with particular focus on cerebral palsy, epilepsy and stroke.

Cerebral palsy (CP) is the leading cause of neurodisability in childhood. We found that more than 80% of cases of CP in Nigerian children result from preventable causes which injure the vulnerable infant/young child brain around the time of delivery and in the early years of life, with severe perinatal asphyxia, severe neonatal jaundice and meningitis taking the lead. Our study also showed that CP acquired in the postneonatal period is no less severe but it is just as disabling as that acquired from prenatal and perinatal causes.

Epilepsy has in the last fifteen years accounted for the highest number of years lost to disability and 40% of the epilepsies seen in Nigerian children are due to preventable causes, with a high economic burden of care and significant negative impact in the quality of life of the affected children and their families.

Two of every three strokes in Nigerian children are due to sickle cell disease. These neurological conditions are largely preventable with the institution of cost-effective, interventions such as universal immunisation, provision of adequate and accessible facilities for safe pregnancies and safe deliveries, the provision of efficient healthcare services for all and routine TCD screening for all children with sickle cell disease. These preventive measures cost only a tiny fraction of the huge cost of caring for the neurologically handicapped.

The scourge of these catastrophic brain injuries with the resultant disability has been unrelenting and has meted untold hardships on a large number of Nigerian children and their caregivers. The time is ripe to tame the unrelenting scourge that has for several decades meted unquantifiable harm to the brains of our children. The time to act is NOW!