

Extended Abstract

Prevention of Kernicterus and Lowering the Incidence of Cerebral Palsy- An Upliftment of Rural Health Care In India

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Abstract:

Kernicterus is a bilirubin induced brain dysfunction that results from unconjugated hyperbilirubinemia in a newborn. It can cause athetoid cerebral palsy, hearing loss and sometimes intellectual disabilities. Cerebral palsy is the leading cause of childhood disability affecting function and development. [1] The incidence of the condition has not changed in more than 4 decades. [2] Population-based studies from around the world report prevalence estimates of CP ranging from 1.5 to more than 4 per 1,000 live births. [3] In India, the estimated incidence is around 3/1000 live births. [4] About 60% of full-term newborns and 80% of premature babies get jaundice. [5] Hypoxic Ischemic Encephalopathy and bilirubin encephalopathy (Kernicterus) are the principle causes of Athetoid Cerebral Palsy. Phototherapy and Exchange transfusion remains the only effective therapy to prevent development of bilirubin encephalopathy. These treatment modalities were not available in rural areas of India in the past. But over last 10 to 15 years, these technologies along with Lab and imaging facilities are being widely used in the periphery as a result of which the incidence of kernicterus and athetoid cerebral palsy has dropped significantly in the rural areas including my own. We share our experience of effectively treating neonatal hyperbilirubinemia in our peripheral setup.

Methology:

We report 10 cases treated between October 2018 and October 2019 in our 20 bedded primary care rural centre.

Results: The outcome was very encouraging. All the newborns were saved from developing neurologic complication of neonatal hyperbilirubinemia.

Conclusion: According to a recent Child Health Epidemiology Reference Group (CHERG) modelling study; [7] Extreme hyperbilirubinemia (TSB>25mg %) caused by Rh incompatibility or

other disorders of bilirubin metabolism, is responsible for a mortality rate of 119 per 100,000 live births in Eastern Europe, Central Asia, Latin America, sub-Saharan Africa and South Asia; the prevalence of kernicterus was estimated at 73 per 100,000 live births. The available literature in *accesspediatrics* [6] indicates that, in LMICs (Low and middle income countries), a significant proportion of survivors of severe neonatal hyperbilirubinemia suffer from chronic bilirubin encephalopathy or kernicterus leading to cerebral palsy, deafness, and language processing disorders, imposing tremendous burden on families. Study from India, [7] Dutta et al. reported that severe jaundice represented 15.3% of neonatal admissions, with a CFR (case fatality rate) of 6.7% and 4.4% of jaundice related deaths. A study conducted in Khulna Medical College Hospital, Bangladesh from 2005–2008 reported that 15.7% of infants presented with neonatal jaundice, with 2.8% of these developing kernicterus and 5 of them dying. Therefore, our objective to reduce the incidence of kernicterus and cerebral palsy in rural areas depends on creating social awareness, putting emphasis on careful observation by Paediatrician and Nursing staff for detection of severe jaundice particularly in the 1st week of life and prompt institution of phototherapy and exchange transfusion where necessary. In term babies phototherapy is indicated at bilirubin level of 15 mg% at 48 hours age whereas in preterm babies it is 12mg% because the threshold for kernicterus is >20 mg% in term babies compared to >13 mg% in preterm babies. The rural population in India was reported at 66.46 % in 2017 census; much higher than urban population. [8] So reducing neonatal jaundice related Athetoid cerebral palsy in rural sector of India will definitely have a positive reflection at the statistical evaluation of cerebral palsy at the national level.

References:

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