Dr. S. Janaki Memorial Oration

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REDUCING THE BURDEN OF NEUROLOGICAL DISORDERS IN CHILDREN IN INDIA- MISSION POSSIBLE!

SYNOPSIS

The burden of neurological disorders in children in India is enormous. Unlike that in developed countries, largely preventable conditions such as epilepsy, CNS infections, and neurodevelopmental disorders constitute over 80% of the burden. According to UN estimates there are ≈ 40 million disabled children in India. An estimated 5 million children in India suffer from epilepsy. Neurocysticercosis accounts for >60% of acquired epilepsy, 20% of our neurology OPD cases, and for > 1500 children seen annually in our clinic. Neurological illnesses constitute about a fourth of pediatric emergencies, and over a third of PICU admissions. CNS infections are responsible for 60% of non-traumatic coma and > 60% of refractory status epilepticus in hospital and for serious sequelae in ≈ 40% children. Cerebral malaria and tubercular meningitis cause significant neuromorbidity in many regions. Preventable birth asphyxia occurs in 0.51 million ewborns per year and is a risk factor in >50% cases of cerebral palsy. Preventable causes of acquired cerebral palsy continue to be seen over 2 decades in ≈ 20% cases; of these CNS infections and kernicterus account for >60% and >35% of cases. In India 71 million people have iodine deficiency; 5.8% cases of mental retardation in North India are because of inborn errors of metabolism; upto 70% of visual and 50% of hearing disabilities are preventable.

Proven preventive strategies against most of these conditions exist. Over 75% of' meningitis can be prevented through universal immunization. Hib meningitis is almost eliminated from UK and USA after universal Hib immunization; in our hospital the overall burden of meningitis decreased by about 50% and that of Hib meningitis from 32% to almost nil after introduction of immunization. Japanese encephalitis has also been eliminated from Japan, Korea and China after vaccination; we too can stop devastating outbreaks of JE and reduce the annual burden of 8247 cases with vaccination. Neurocysticercosis and JE can be fully controlled with improved sanitation, animal husbandry and public education; consequently the incidence of epilepsy can be reduced. Mass human chemotherapy with niclosamide and praziquantel can reduce intestinal tapeworm by 90-95%. Vaccination and chemotherapy of pigs can reduce cysts by

99.9%. Birth asphyxia can be reduced by almost 50% with community based interventions. Iodine supplementation program has improved cognitive and developmental scores of babies. Newborn screening for metabolic disorders can reduce neuromorbidity and save about 10,800 lives annually.

Secondary prevention is equally important. Immediate appropriate antibiotic therapy significantly reduces mortality and morbidity of bacterial meningitis. Early cysticidal therapy increases resolution of neurocysticercosis lesions and reduces seizures. Therapeutic hypothermia has a relative risk reduction of 25% on mortality and neurodevelopmental disability in asphyxiated infants. Kernicterus can be eliminated with simple interventions. Acute shortage of pediatric neurologists in India necessitates training of medical officers and pediatricians at all levels to ensure early appropriate management of common neurological disorders in children.