Letters to the Editor

Rapid Assessment of Childhood Disabilities Through Key Informant Approach

Childhood disabilities are a cause of major concern causing significant handicap to the affected children. At least one in ten children are born with or acquire a physical, mental or sensory impairment, 50% of these can be prevented or postponed(l). It is important to detect and manage these disabilities early for interventional measures to have a perceptible impact on the quality of life. Conventional surveys are expensive and take time to conduct. This study was conducted to rapidly identify disabilities among children below 14 years of age using Key informant approach(2).

The study was conducted in Mograhat II rural block in West Bengal. Nine villages were selected using multi-stage random sampling. In each village key informants were identified, explained about childhood disabilities and were asked to identify children with disabilities. These children were examined by a postgraduate medical student, their mothers were interviewed and medical records were reviewed. Eighty-three children with 135 disabilities were identified among 5922 under-14-year children (point prevalence 14/1000 children) in a total population of 15708 in 9 villages. Disabilities identified (*Table I*) included mental retardation - 30.1%, learning disability - 27.7%, speech disability - 22.9%, bone deformity -15.6%, disability due to chronic disease - 15.6%, hearing disability - 14.4%, post polio disability - 13.2% and cerebral palsy - 9.6%. Forty-one percent of the children were aged 5 to 9 years, 53% were males, 45.8% of the disabilities were of congenital origin.

The prevalence of childhood disability varies depending on the method of disability detection. The prevalence in our study was more than that estimated through routine reporting in Ethiopia - 1.9/1000 children under 14 years(3) but lower that estimated by house-to-house surveys using ten questions in Eastern Jeddah(4) (36.7/1000), and Bangladesh (22/1000 2-9 year children)(5). The proportion of types of disabilities identified in our study is similar to that found in Bangladesh(5) where mental retardation 36%, speech disability 27%, hearing disability 18%, vision disabilities 7% were the major disabilities identified. Similar findings have been reported in Eastern Jeddah(4). In our study 55% of the disabilities were acquired indicating that more than half of the disabilities could have been prevented. In Safdarjung hospital, New Delhi it was found that 45.5% of the disabilities could have been prevented. In general also, it has been estimated that about half of childhood disabilities can be prevented(1).

Since childhood disabilities cause preventable chronic childhood morbidity often leading to life-long handicap and considerable strain to the families of the children affected(1), it is important to detect and mange these disabilities early. Detection methods that are rapid, simple and feasible for application in rural settings are required. Using the key informant approach we were able to quickly identify the major types of childhood disabilities. This approach can be used as a preliminary method for disability detection awaiting more rigorous surveys. Comparative

TABLE I–*Disabilities Identified.*

Type of disability (ICD No.)	Number of children	Percentage of children	Prevalence per 1000 < 14 year children
Visual disability	4	4.8	0.7
Keratomalacia (H 17)-4			
Hearing disability	12	14.8	2.0
Deaf mute (H91)-5; Suppurative otitis media (H66)- 7			
Speech disability	19	22.9	3.2
Deaf mute (H91) - 5; cleft lip ± palate (Q35-37) - 5; Cerebral palsy (G80) - 6; Cretin (E0.0) - l; Others - 2			
Cerebral palsy (G80)	8	9.6	1.3
Postpolio deformity (B91)	11	13.2	1.8
Mental retardation	25	30.1	4.2
Mild (F.70)-15; Moderate (F.71); Severe (F. 72)-4			
Learning disability (F .80).	23	27.7	3.8
Bone deformity	13	15.6	2.2
Talipes (Q66)-5; Knee deformity (Q68.2)-3; Hip deformity (Q.65)-1; Spine deformity (Q67.4 & Q76.4)-2; Hydrocephaly (Q03)-1, Microcephaly (Q02)-1.			
Traumatic Limb deformity	7	8.4	1.2
Accident (T90)-6; Burns (T95)-1.			
Chronic disease	13	15.6	2.2
Congenital heart disease (Q20-24)-1; Asthma (J45)-6; Epilepsy (G40)-3; Post surgery (T80-88)-1; others -2			

Total number of disabled children 83; total number of disabilities 135.

studies need to be conducted to determine the sensitivity and specificity of key informant surveys. The key informant approach has the advantage of involving local people in the detection of disabilities thus bringing out participation by the community. These key informants can be further trained so that they can act as local resource personnel for provision of primary information, counselling and care for children with disabilities at the community level.

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Acute Respiratory Infection with CNS Excitation Symptoms—Consider Theophylline Over-Dosage

Theophylline is an effective broncho-dilator at therapeutic levels but administration of excessive amounts may produce serious toxicity including arrhythmias, seizures and death(1). We conducted a descriptive study during October-December 2002 on children presenting with acute respiratory infection (ARI) and CNS excitation symptoms to find out the cause for CNS excitation symptoms. The age, sex, clinical manifestations, concurrent medical illness and medications were recorded. Serum theophylline level samples were collected as soon as child arrived in emergency department in addition to serum electrolytes, serum calcium, CSF analysis and chest radiograph. Serum theophylline levels were determined by high-performance liquid chromatography (HPLC).

During the study period, a total of 10 children presented with acute respiratory infection and CNS excitation symptoms. 6 cases had evidence of acute theophylline over dosage. The clinical features of these children are given in *Table I*. The most common manifestations were irritability (100%), tremors (83.3%), seizures (66.6%), and vomiting (50%). Tachycardia and tachypnea were seen in all children. Hyperglycemia was seen in 2 (33%) children. All these 6 children had received theophylline preparations by local practitioners before admission. Out of the remaining 4 children, 2 had hypoxic seizures, one had acute CNS infection and one had probable inborn error of metabolism.

The average pediatric serum half-life of theophylline is slightly less than the average adult serum half-life of four hours(2). The usual pediatric range is wide (2 to 12 hours)(3) and varies inversely with age, being quite prolonged in premature neonate. Correlations between serum theophylline levels and drug toxicity in children are scanty. Therapeutic range of serum theophylline levels were between 5-10 µg/mL in neonates and 10-15 µg/mL in infants. In 1993 Powel EC(4) had observed that seizures developed with a theophylline concentration of >50 µg/mL. In our study children had CNS signs even at serum theophylline concentration between