Editorial

LEARNING PROBLEMS IN CHILDREN WHO WERE "HIGH RISK" AT BIRTH

The last two decades have witnessed tremendous improvement in neonatal care. The technological advances in neonatal care, the close neonatal-obstetric collaboration and improved understanding of the neonatal physiology, have steadily improved the survival of the high risk neonate. In fact, infants are surviving after insults which were previously thought to be fatal(l), and many survive without a major handicap. However, this improved outcome has not been reflected in the more complex arena, referred to as the "scholastic performance."

Most of us Pediatricians in India closely monitor a high risk infant for short periods of time, and once the child starts walking and talking by 18 months, the vigilance is relaxed. However, cognitive problems may only become apparent around four to five years, when the child enters school. These school related problems may manifest as subtle motor, visuo-perceptual, reading and writing difficulties, which often result in classroom behavior problems. The importance of education is being increasingly recognized in our society. Admissions to good schools are getting increasingly competitive, and parents are overtly conscious of the performance of the preschool child.

The survival of VLBW (weighing less than 1500 grams) babies has improved considerably in NICUs from the developed countries. Inspite of this, the reported incidence of severe disabilities like cerebral palsy has remained quite stable (4.5-10%) for the last twenty years. However, these positive findings are also accompanied by reports of increasingly higher incidence of mild learning difficulties. Although, these children look normal, have age-appropriate adaptive skills and activities of daily living, they often have poor school achievement. The continual change and improvement in the neonatal care, means that the neonate born in 1990s is receiving far better care than the neonate born in the 1980s. This difference in the level of care might reflect in the type of neurological sequelae.

Historical Perspective

In 1961, Drillen(2) reported the results of the school age follow up of a group of children weighing less than 1360 grams born between 1948 to 1956. Fifty per cent of these children were not educable within the normal education system. In 1978, Stewart *et al.(3)* presented data in 50 children with birthweight less than 1500 grams born in the late 1960s. Seventy six per cent of these children were in regular classes with no other handicap. This striking change in prognosis has been supported by other investigators(4).

The Borderline Child or the "Slow Learner"

Borderline intelligence or low cognitive abilities is defined as functioning below the average range, but not in the range of mental retardation. This includes the population,

commonly referred to as the "slow learners". This diagnosis is usually made by doing IQ tests, where the IQs range between 70-84. The actual figure of the IQ is not so important, but the range gives us some clue regarding the cognitive development of the child. Frequently, this problem may go undiagnosed except for casual observation of the child, who seems less bright than his siblings, or fails in school. The child may be labelled as a 'dud' by his classmates. The parents think he is lazy and is admonished for not wanting to study. On closer observation, other functioning is almost age-appropriate. This child has an overreliance on repetition and rote learning, instead of incidental learning and often expresses a preference for familiar routines. The level of concern expressed by the family of this child regarding his borderline intelligence is entirely governed by the family norms. The parents of children from the rural areas or urban slums, who are themselves illiterate are not too concerned about the intelligence level of their children. Urban families, who have a strong emphasis on academic achievement are extremely worried about the slow rate of achievement of this child. The child is put under undue pressure to perform better and the inability of the child to 'cope', leads to behavior problems.

Behavior Problems

Many studies(5) report a higher incidence of behavior problems in high risk children compared to their peers with normal birth histories. The behavior problems are divided in two main groups *(i)* conduct problems; and *(ii)* internalizing behavior.

Conduct Problems

These include: *(a)* short attention span, difficulty in completing projects impulsive behavior, which ultimately leads to poor school performance; *{b)* hyperactivity-this can be extremely distressing and may sometimes need medication. The child is fidgety, will not sit still and is constantly on the move; and (c) aggressive behavior, consisting of bullying the other children, getting into constant fights, *etc.* If the nature of these problems is not understood by the teacher and parents, the child is constantly scolded and punished, which leads to further aggravation of the problem.

Internalizing Behaviors

A Pediatrician is more likely to hear distressed parents ask for advice regarding their child's aggressive behavior rather than withdrawn and shy behavior. However, the latter behavior problem is equally important. Standardized behavior rating scales such as those used by Breslau *et al.(6)* indicate that internalizing problems occur in greater frequency in the low birth weight population compared to matched term population. This includes timidity, shyness, unwillingness to become involved in social activities and a certain degree of passivity. "Vulnerable child syndrome" may be an important cause of behavior problems in high risk children. The family perceives them as fragile, and vulnerable despite the evidence of excellent physical health at this stage. Hence, parents tend to coddle and spoil the child. Overprotectiveness, overindulgence, overpermissiveness and restriction of autonomy of the child, further aggravate the behavior problems.

The word learning deficits or learning disorders (LD) has been scrupulously avoided in this write-up. Many Pediatricians use the world LD and learning difficulties interchangeably. Learning disability is a condition where the child has normal or above normal intelligence with specific

problems either in thinking, writing, reading, language or mathematics. This entity should not be confused with the learning problems of the borderline child.

Incidence

The incidence of borderline intelligence (IQ 70-84) is reported as 14 to 27% by various authors in very low birth weight children(7) whereas the prevalence in the total US population is reported as 6%. There are no Indian figures available. We have an ongoing longitudinal study of high risk children discharged from our NICU. In all, 269 high risk neonates are enrolled in this study, out of which 192 are low birth weight. Fifteen per cent of the children assessed at 5 years had IQs ranging between 70-84 and are possibly slow learners (unpublished).

Evolution

Borderline intelligence in these high risk children may be expressed in two patterns:

(i) Gradual decrease in learning rate. This is expressed as a gradual decrease in the IQ as the child gets older. This child may have average quotients (DQ >84) on the Bayley Scales of Infant Development at 18 months, but gradually drops to borderline quotients in the preschool years. The possible reasons for this decline could be that the Bayley Scale emphasizes on motor achievement in the earlier years and does not thoroughly evaluate mental processing. The decrease in the quotients does not indicate a deterioration in intelligence but a different sampling of skills(8). The second reason could be that the decrease in the learning rate may be related to growing up in an environment which is not optimally stimulating. Hunt(9) has reported the impact of poor maternal education on the developmental outcome.

(ii) Stable expression of borderline IQ. This is a consistent demonstration of low cognitive abilities. The mother may have observed that all milestones were achieved a little late, in the outermost limit of the normal range. This group includes children with real cognitive deficits who in response to excellent family support and educational intervention are able to progress at a near normal rate.

Diagnosis and Management

It is extremely important to make a definite diagnosis of borderline intelligence. This can be done by using IQ tests. The two commonly used intelligence tests in India are the Stanford Binet or Weschler's Intelligence Scale for Children-Revised (WISC-RX The WISC is a better test to use because it gives a full scale, performance and verbal IQ. The absolute figure of the IQ is not important, but it is the range (70-84) which is important. Visuo-perception can be tested by the Bender-Gestalt test. Emotional indicators can be tested by using the human figure drawing by Koppitz. Evaluation of the child by the occupational therapist is an important part of the assessment because many writing problems are due to poor gripping of the pencil. In our experience, hypotonia of the extensor muscles of the hand was found in several children with writing problems.

A correct diagnosis helps the parents to accept and mobilize more appropriate intervention and teaching. The families in turn reduce the pressure on the child and no longer attribute poor school achievement to laziness. Families, who are not 'achievement oriented', may find the borderline child easy to integrate. For instance, the

parents of a child in the fanning community are quite happy as long as the child can talk well and there is no motor disability which hampers manual labor. Similarly, the families from the urban slums who are not educated themselves, are not too concerned about the intelligence of their children. A lot also depends on the type of school that the child attends. Children attending village schools and municipal corporation schools are easily promoted. In Maharashtra State, there is a Government policy to promote all primary school children as far as possible. This may perhaps delay the diagnosis in the borderline child.

Remedial education is extremely important for helping these children. Instead of putting them in special schools, mainstreaming of these children in normal schools is extremely rewarding. A remedial education specialist can be employed in schools where the child with a special problem can be helped by this teacher, while he attends other classes with normal children.

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