COMMON DEVELOPMENTAL DISORDERS

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Raghu is always on the move, much as his mother would want him to settle down. His teachers always complain and find it difficult to manage him in class. He is always out of place and misses out the instructions. Over a period of time, his grades have also started falling. His mother has started wondering if her child is hyperactive or just too active...

Hetal, a ten-year old child, is showing problems in studies. She can say the spelling correctly, but writes it wrong. Her written work is often incomplete and she is starting to show failures in class tests. Her father feels he too was same in his childhood and could she be having Dyslexia…

Sonu stays aloof in his class and does not participate in group activities. He appears a bright child but does not answer in class. His teachers wonder if he is ready for schooling.

It is not unusual to find such children around us. As Clinicians, while working with children we often wonder, about missing something or the dilemma of not picking up these subtle yet significant difficulties at the right time and giving them the correct prescription and advice. Hence it is important to know more about these newer group of disorders commonly clubbed together as Developmental Disorders.

Important considerations at present is rise in the prevalence of these disorders due to increased reporting and awareness among the medical, paramedical professionals and society at large. The patients expect solutions from the primary medical care giver which is essentially Physician, Family Doctor or Pediatricians.

What are Developmental Disorders?

The term "developmental disorder" or "developmental disability" means a severe, chronic disability of an individual that is attributable to a mental or physical impairment, or combination of mental and physical impairment and is manifested before the individual attains the age of 22 and is likely to continue indefinitely

Development Disorders results in substantial functional limitations in three or more of the following areas of major life activity like self-care, receptive and expressive language, learning, mobility, self-direction, capacity for independent living, economic self-sufficiency and reflects the individual's need for a combination and sequence of special, interdisciplinary, or generic services, individualized support or other forms of assistance that are of lifelong or of extended duration and are individually planned and coordinated.

What are the common Developmental Disorders?

Some commonly seen conditions are Developmental delays, Autism, ADHD, Dyslexia, Developmental coordination disorder, Dyspraxia etc.

What causes these Developmental Disorders?

Various physical or mental disorders are likely to result in delayed development and developmental disorders. Few of the common causes are Chromosomal abnormalities, Genetic or congenital disorders, Inborn errors of metabolism, most of these would usually present with multiple disabilities along with dysmorphism. Any insult leading to disturbance of the development of the nervous system would represent as mild to severe developmental disorders depending on the time and extent of insult e.g. Disorders secondary to exposure to toxic substances, including fetal alcohol syndrome. Severe sensory impairments, including hearing and vision will also present with delay in developmental domains.

NICU graduates and children with neurological conditions like epilepsy, meningitis are at greater risk of having developmental problems. With advancement of NICU facilities, many high risk and preterm neonates have good survival but are found to have various developmental disorders in many longitudinal studies.

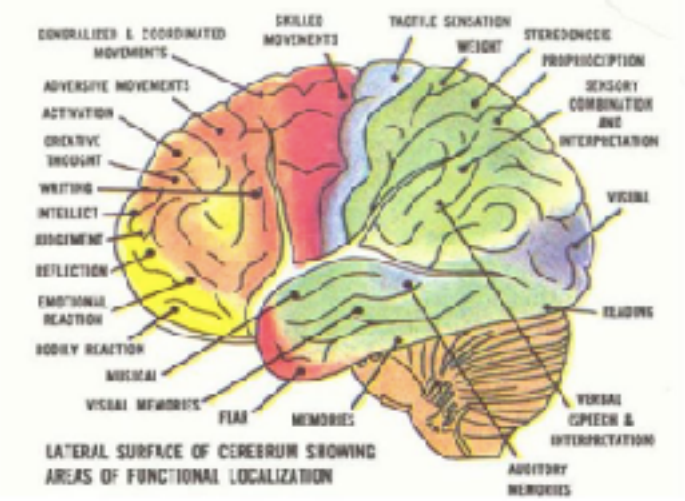
A recent study concluded that Infants < 34 wks of gestation have 3 times developmental delay as compared to general population. At 4 yrs of age, 33% of extremely preterm infants (i.e., < 28 weeks) have cognitive impairment, at 6 yrs of age, 21% of show cognitive impairment Overall, nearly 50% of extremely preterm infants and 33% of very preterm infants (i.e., at 28 to 34 weeks of gestation) have some form of disability. Even late preterm infants (i.e., delivered between 34 and 37 weeks of gestation) have a relative risk of 1.13 for disability by 3 yrs of age, increased risk of neurodevelopmental disabilities upto 7 yrs of age & poorer motor performance than term infants.

How would Developmental Disorders present clinically?

Developmental Disorders usually would present in the first year of life with delayed milestones. Cerebral palsy with head lag and asymmetry is easily picked up by the parents as the child would show lag in motor development. The more challenging are the subtle ones which present later as speech delays, cognitive delays and behavioural problems.

It is important for the attending medical care giver to periodically screen all the children for developmental disorders in the first five years of life. Parents also have to primed about the expected difficulties in various domains of development in case of high risk babies.

However in quite a few of developmental disorders the functional assessment of various domains of development becomes very vitals. Neuroimaging and EEG may not be useful unless associated with epilepsy, birth asphyxia, CNS malformation or insult.



Many functional assessments are available to help ascertain the areas of strengths and weaknesses. The verification of delay is obtained through an evaluation process, which includes informed clinical opinion to include observational assessment, standardized development test(s), developmental inventory, behavioral checklist, adaptive behavior measure and parent interview. Development Quotient (DQ) performed by standardized tests gives an accurate estimate of developmental level along with a score which quantifies the delay as well helps in monitoring the progress of the child.

How are these disorders managed?

Developmental Disorders are managed by multidisciplinary team orchestrated by the primary medical care giver. The management is aimed at *Early Detection & Early Intervention.* Various therapies and special education supported by counselling remains the mainstay of treatment. Various studies support the role of early intervention in achieving short term as well as long term goals for these children.

Medical management is needed for treating co-morbidities like epilepsy, tone abnormalities, drooling and also behavioral conditions causing hyperactivity and aggression.

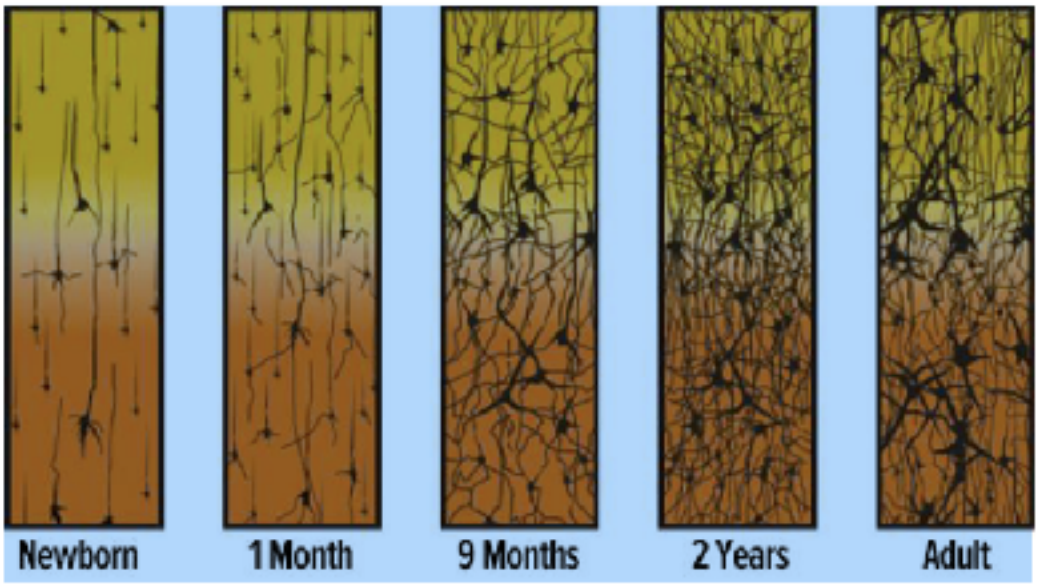
How does Early Intervention work?

Early intervention is based on the principle of Neuroplasticity which refers to the brain's ability to reorganize itself by forming new neural connections throughout life. Neuroplasticity allows the neurons (nerve cells) in the brain to compensate for injury and disease and to adjust their activities

in response to new situations or to changes in their environment.

Brain reorganization takes place by mechanisms such as "axonal sprouting" in which undamaged axons grow new nerve endings to reconnect neurons whose links were injured or severed. Undamaged axons can also sprout nerve endings and connect with other undamaged nerve cells, forming new neural pathways to accomplish a needed function.

For example, if one hemisphere of the brain is damaged, the intact hemisphere may take over some of its functions. The brain compensates for damage in effect by reorganizing and forming new connections between intact neurons. In order to reconnect, the neurons need to be stimulated through activity. Neuroplasticity is also called brain plasticity or brain malleability



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NIRAMAY GUIDANCE CLINIC

Niramay Guidance Clinics provide a continuum of preventive, consultative, diagnostic, early intervention, and treatment services for children and their families. The multi-disciplinary support services are provided by a team of Developmental Pediatrician, Psychologists, Special educators, Occupational therapists, Physiotherapist, Speech therapists.

Neuro-Developmental Assessment : for monitoring adequate development and early identification of delayed milestones in various areas with detailed assessment and appropriate therapy.

IQ Testing (Adults & children) & **Educational or Dyslexia Testing** : to help children with problems in studies like spelling mistakes, poor handwriting etc by proper testing and remedial teaching.

Autism Testing : children with poor social skills and speech problems along with screening, diagnosis and management of autism spectrum disorder.

ADHD Testing for Hyperactive and Inattentive Children and medical and behavioural management.

Behavioral assessment & **Personality testing :** provides support required during the transition period of adolescence and difficult childhood and parenting.

Aptitude Testing and career guidance program: One-on-one counseling are provided in the areas of vocational assessment with aptitude testing with detailed career guidance.

Early intervention clinic for high risk babies and NICU graduates for early diagnosis and rehabilitation. All babies are assessed by standardized screening and diagnostic tools and then put on Intervention programs along with Home program to be carried out by mothers. These services aim to empower the parents to understand their needs and be a part of the entire intervention program.

Speech Therapy : Delayed speech, poor articulation, stuttering etc are the commonly seen in children and adults and are handled by speech-language therapists at our centre.

Occupational Therapy: In children it involves handling difficulties in motor, sensory and perceptual areas which hamper their performance.

Special Education : At Niramay Guidance Clinic our educators identifies the psychological & learning difficulties and helps to develop compensatory approaches.

Niramay Guidance clinic is headed by **Dr Anjana Thadhani,** a Consulting Developmental Pediatrician. She is the founder & director of Niramay Guidance Clinics at Chembur, and Kharghar, which are comprehensive centers for assessment of behavioral, educational and psychological problems of children and their remediation and treatment. She has worked in Learning Disability, Learning Disability Clinic, LTMGH, Sion, Mumbai for over ten years and is presently working with Learning Disability clinic at KEM hospital, Parel, Mumbai. She is also working as Honorary Consultant in Developmental Paediatrics at B J Wadia Children Hospital.

She is presently the Secretary of IAP Growth, Development and Behavioral Pediatrics Chapter. She is National coordinator of Cradle to Crayon, a program dedicated to training Pediatricians across the country on Developmental Disorders. She has been part of core committee for devising IAP modules on Developmental Delay, Autism & Growth Monitoring.

She has been conducting orientation and training programs on learning disability and related issues for pediatricians, teachers, principals and other health personnel. She is also a teaching faculty for special education and counseling courses at various institutions. She has contributed several chapters on Dyslexia, Behavioural problems, Child Abuse, ODD and Conduct disorders in various books. She also helps underprivileged children in special needs through her NGO PEHL Services.

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