Pediatrics - Topic 3 - Common problems related to Development-1 (Developmental delay, Cerebral palsy)

Developmental Delay and Disability

- **Developmental delay** means that a child acquires a skill later than expected for age after allowing for prematurity and the normal range of variation.

Related Developmental Terms

- A significant delay is commonly established using validated assessment, often a performance at least two standard deviations below the expected mean in the affected domain.

Patterns of Developmental Delay

A. Global Developmental Delay

- Global developmental delay describes a significant delay in at least two developmental domains in a young child, usually younger than 5 years.

B. Isolated Developmental Delay

- An isolated delay affects one area, such as language, while other skills may progress appropriately.

Regression

- **Regression** means the loss of an acquired skill and requires prompt investigation for a neurological or other medical disorder.

Functional Disability

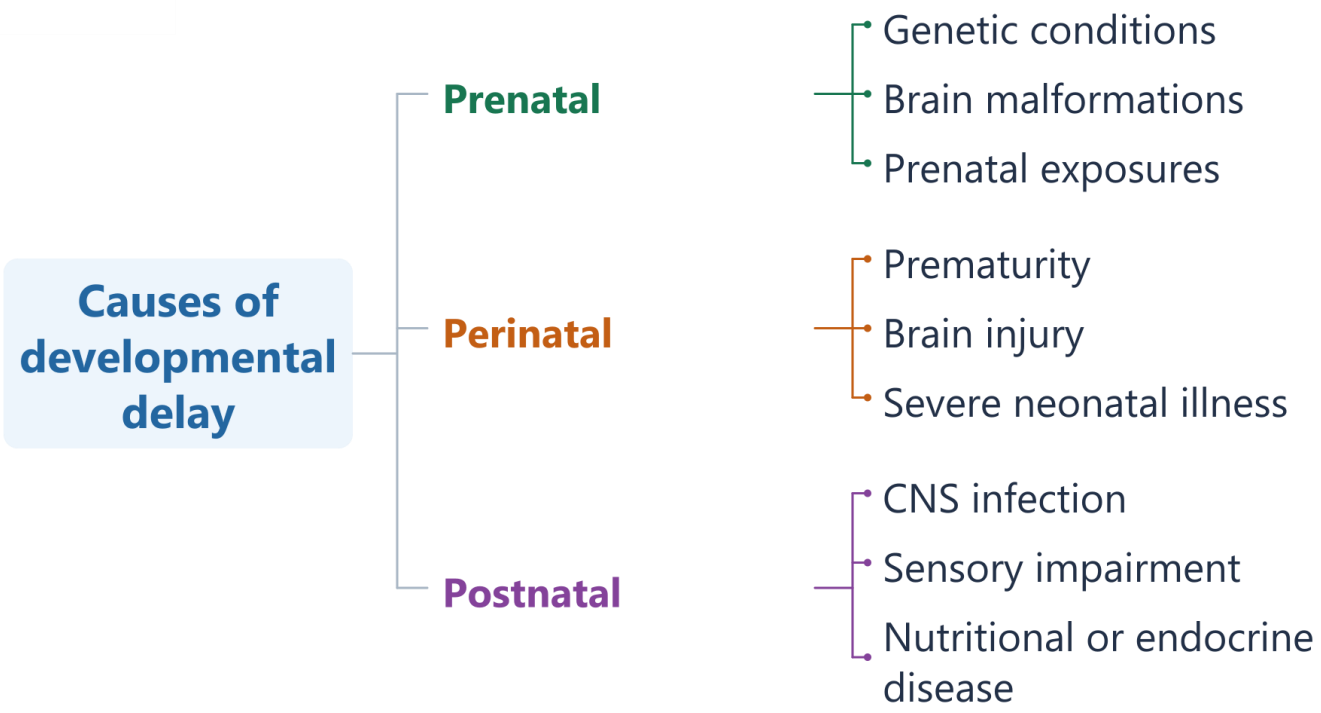
- A disability reflects difficulty in function and participation in the child's environment, not simply an abnormal test score.

Intellectual Disability

- Intellectual disability involves limitations in intellectual functioning and adaptive functioning that begin during the developmental period.
- Adaptive functioning includes communication, self-care, social judgement and practical daily activities.
- Assessment must consider the child's language, culture, educational opportunity and sensory abilities.
- The required level of support is more informative than using an IQ score alone to describe the child.

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Causes by Timing



1. Before and Around Birth

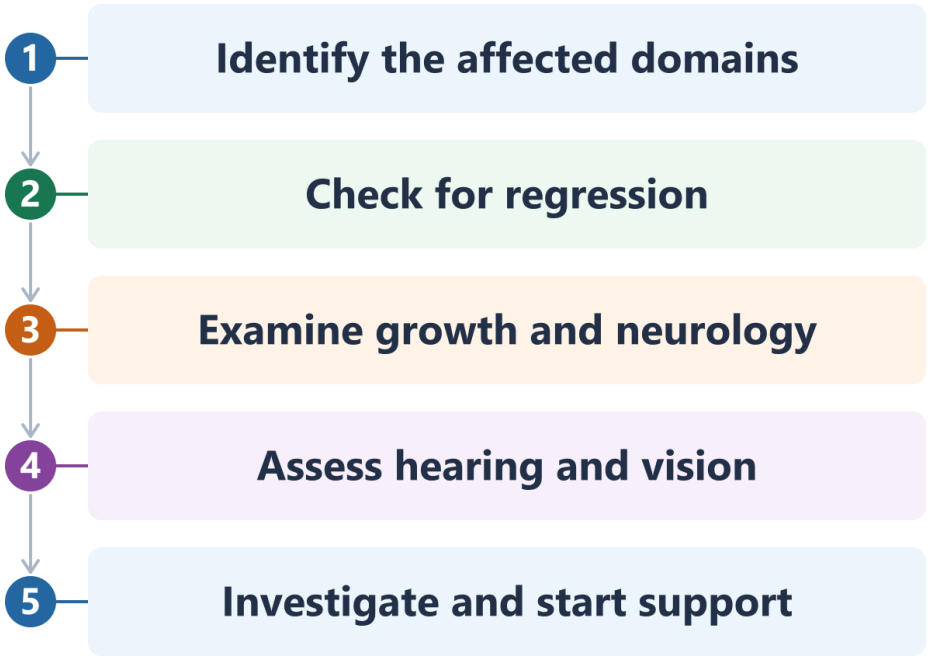
- Genetic conditions, chromosomal disorders, brain malformations and certain metabolic diseases may affect development before birth.
- Maternal infection, severe nutritional deficiency and exposure to harmful substances can damage the developing nervous system.
- Prematurity, neonatal brain injury, severe jaundice, hypoglycemia and central nervous system infection may affect later development.

2. After Birth

- Meningitis, encephalitis, head injury, severe malnutrition and untreated hypothyroidism are important acquired causes.
- Hearing or visual impairment can limit learning and communication and should be sought actively.
- Limited opportunities for responsive interaction may contribute to delay but must not be assumed to explain all abnormalities.
- Sometimes no single cause is found even after an appropriate investigation.

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Approach to a Child With Delay



History and Direct Observation

1. Describe the Developmental Pattern

- Ask the caregiver which skill first caused concern and whether development is progressing, static or regressing.
- Review gross motor, fine motor, language, social and adaptive skills separately.
- Ask about seizures, unusual movements, swallowing, sleep, vision, hearing and behaviour.
- Use examples of everyday function, such as reaching for a toy or following a familiar instruction.

2. Look for the Cause and Associated Needs

- Review antenatal exposures, birth events, neonatal illness, family history and previous screening results.
- Ask about consanguinity, similarly affected relatives, unexplained childhood deaths and previous pregnancy losses when relevant.
- Assess the child's nutrition, communication needs, home environment and access to school or therapy.
- Observe how the child moves, plays, solves simple problems and interacts with a familiar caregiver.

Examination and Investigations

Clinical Examination

- Plot weight, length or height and head circumference before interpreting neurological findings.

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- Look for dysmorphic features, skin markings, organ enlargement and abnormalities of vision or hearing.
- Examine posture, tone, strength, reflexes, coordination and gait according to the child's age.
- A persistent early hand preference may indicate unilateral weakness rather than advanced motor development.

Focused Tests

- Arrange formal hearing and vision assessment when delay is unexplained or sensory impairment is suspected.
- Choose thyroid, metabolic, genetic or other tests according to the phenotype, history and specialist pathway.
- Brain MRI is useful when neurological signs, abnormal head growth or a suspected structural cause justify imaging.
- An EEG is indicated when seizures or an epileptic developmental disorder are suspected, rather than for every delayed child.
- Testing should run alongside early support and should not delay intervention until a final label is available.

Red Flags and Referral

- Refer urgently if the child loses skills, develops new focal weakness or has seizures with altered consciousness.
- Progressive weakness, swallowing difficulty, recurrent aspiration or respiratory compromise also requires prompt assessment.
- Refer significant multidomain delay, concerning head growth and suspected genetic or neurological disease to developmental and pediatric services.
- Document the child's current abilities and functional concerns so that the referral has a clear clinical purpose.

Cerebral Palsy

- **Cerebral palsy** is a group of permanent disorders of movement and posture caused by a nonprogressive disturbance in the developing brain.

Clinical Patterns

- The original brain disturbance does not progress, but muscle tightness, contractures and functional difficulties may change as the child grows.
- Spastic cerebral palsy causes increased tone and brisk reflexes, while dyskinetic forms cause involuntary movements and fluctuating tone.
- Ataxic cerebral palsy mainly affects balance and coordination, and mixed patterns can occur.

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