

# **Disorders of Development**

*for*

*5<sup>th</sup> year Medical Students*

**By**

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# Global developmental delay

Global developmental delay mean significant delay in 2 or more of the 4 fields of development.

# Causes of global developmental delay

## **A) Static causes:**

Prenatal:

- Chromosomal abnormalities (Down syndrome, Fragile X syndrome)
- Intrauterine infections (TORCH)
- Congenital brain malformation

Perinatal:

- Hypoxic ischemic encephalopathy
- Prematurity
- Birth trauma

Postnatal:

- Trauma
- Intracranial infections

## **B) Progressive causes:**

- Endocrine : Hypothyroidism
- Metabolic : Aminoaciduria and Galactosemia
- Neurodegenerative diseases

# **Management of child with global developmental delay**

- 1) Take a detailed history and perform a detailed physical examination**
- 2) Referral for auditory and ophthalmologic screening**
- 3) Metabolic screening-** blood, urine, and CSF samples for metabolic tests
- 4) Brain imaging-** CT/MRI
- 5) EEG-** if history of epileptic syndrome

## **6) Evaluation for features suggestive of a specific diagnosis**

- a. Tests for Down's syndrome, fragile X syndrome and other genetic disorders
- b. Lead screening in children who have identifiable risk factors for excessive environmental lead exposure
- c. Thyroid function tests
- d. TORCH serology for suspected congenital infection

**7) Referral to the geneticist** in patients with loss or regression of developmental milestones, history of parental consanguinity, prior unexplained loss of a child, or multiple miscarriages.

**8) Referral to other members of the team as required**-Community pediatrician, Occupational therapist, Physiotherapist, Orthopedic surgeon, Orthotics, School teacher, School nurse, Neurologist, General practitioner and social worker.

# Gross motor delay

## Causes:

**1) Familial or delayed motor maturation**

**2) As part of global developmental delay**

**3) Neuromuscular disorder** as:

congenital myopathy or Duchene-Muscular dystrophy and other causes of hypotonia e.g. Prader-Willi syndrome, Down's syndrome

**4) Progressive metabolic disorder**

**5) Rickets**

**6) Spina bifida**

# **Management of child with gross motor delay**

- 1) Take a general history involving personal, family and social history**
- 2) Perform a detailed physical examination to look for an underlying cause**
- 3) Assessment for possible chromosomal abnormality**
  - a. Karyotyping
  - b. FISH studies

## **4) Investigate possible muscular dystrophy**

a. CPK

b. Molecular/genetic tests

## **5) Metabolic screen**

## **6) Brain imaging- CT/MRI scan**

## **7) X-ray and bone profile in cases of suspected rickets**

a. X-ray of the wrist

b. serum Calcium, Phosphate, alkaline phosphatase, Parathyroid hormone, Vitamin D level.

**8) Referral** to Community pediatrician, Occupational therapist, Physiotherapist, Orthopedic surgeon, Orthotics, School teacher, School nurse, Geneticist, Neurologist, General practitioner and social worker.

# Fine motor delay

## Causes

- 1) Familial or delayed motor maturation
- 2) Developmental Dyspraxia
- 3) As part of global developmental delay
- 4) Visual disorder
- 5) Progressive metabolic disorder

# Management of child with fine motor delay

**1) Take a detailed Personal and family and social history**

**2) Perform a detailed physical examination**

**3) Assess for possible chromosomal abnormality**

a. Karyotyping

b. FISH studies

**4) Brain imaging- CT/MRI scan- depending on the severity and clinical findings**

**5) Metabolic screen**

**6) Ophthalmology referral**

**7) Referral** to Community pediatrician, Occupational therapist, Physiotherapist, School teacher, School nurse, Geneticist, Neurologist, General practitioner and social worker.

# Causes of speech and language delay

**1-Mental retardation**

**2-Hearing loss**

**3-Cerebral palsy**

**4-Autism**

**5-Psychosocial deprivation**

## **6-Bilingualism**

Bilingualism is known to result in temporary expressive language delay. The child usually develops both languages by the age of 5 years.

## **7-Maturation delay**

Delay in the maturation of central neurological processes necessary for talking. This is more common in boys and there is usually a family history. The prognosis is excellent

## **8-Specific speech disorder**

(e.g. Expressive aphasia or Comprehension aphasia)

# Management of child with delayed speech

- 1) Take a detailed Personal and family and social history**
- 2) Perform a detailed physical examination**
- 3) Hearing assessment**
- 4) Brain imaging- CT/MRI scan**
- 5) EEG may be indicated in some cases**

**6) Metabolic screen**

**7) Thyroid function tests**

**8) Child Psychiatrist assessment**

**9) Referral** to Community pediatrician, Audiologist, Speech and language therapist, occupational therapist, School teacher, School nurse, Child psychiatrist, General practitioner and social worker.

# Cause of social and behavioral delay

1- as a part of global developmental delay

2- Chaotic family environment

3- Psychosocial deprivation

4- Autism

# Management of child social delay

- 1) Take a detailed Personal and family and social history**
- 2) Perform a detailed physical examination**
- 3) Child Psychiatrist assessment**
- 4) Social assessment**
- 5) Referral** to Community pediatrician, School teacher, School nurse, Child psychiatrist, General practitioner and social worker.

**THANK YOU**