

## Intellectual Disability (ID)

*Assistant Professor Dr. Bahaa A. Ahmed  
Dept. of Pediatrics*

### **LEARNING OBJECTIVES:**

- 1. Define intellectual disability.**
- 2. Grade the severity of intellectual disability according to IQ scores.**
- 3. Know the important list of investigations for intellectual disability.**

### **Definition**

**Intellectual disability (ID):** refers to a group of disorders that have in common deficits of adaptive and intellectual function and an age of onset before maturity is reached.

### **Diagnostic criteria for intellectual disability:**

**A.** Significant impairment in general intellectual functioning (reasoning, learning, problem solving) i.e. 2 standard deviations below the mean of the intelligence quotient (IQ): an IQ score of approximately 70 or below on an individually administered IQ test.

**B.** Significant impairment in adaptive behavior in three broad sets of skills.

Adaptive behavior refers to the skills required for people to function in their everyday lives.

1. Conceptual skills: e.g. language, reading, writing..

2. Social skills: e.g. interpersonal skills, self-esteem, ability to follow rules, obey laws..

3. Practical skills: e.g. are performance of activities of daily living (dressing, feeding, toileting/bathing, mobility), instrumental activities of daily living (e.g., housework, managing money, taking medication, shopping preparing meals, using phone)..

For a deficit in adaptive behavior to be present, a significant delay in at least 1 of the 3 skill areas must be present.

**C.** The onset is before age 18 years.

### **Classifications of intellectual disability:**

Intellectual disability can be subdivided into mild, moderate, severe, and profound categories depending on the severity of the deficits.

Mild      IQ level 50-69

Moderate IQ level 35-49

Severe    IQ level 20-34

Profound IQ level below 20

## **Epidemiology**

The prevalence of intellectual disability is 2.5% of the population, and 85% of these individuals fall into the range of mild intellectual disability.

The prevalence of severe intellectual disability is approximately 0.3-0.5% of the population.

Intellectual disability occurs more frequently in boys than in girls.

## **Etiology**

Mild ID (IQ 50-70) is associated more with environmental influences, with the highest risk among children of low socioeconomic status. Severe ID (IQ <50) is more frequently linked to biologic and genetic causes. Accordingly, diagnostic yield is generally higher among persons with more severe disability than among those with mild disability.

### **- Prenatal**

- . Chromosomal: e.g. trisomy 21 and fragile X syndrome.
- . Genetic syndrome e.g. tuberous sclerosis.
- . Inborn errors of metabolism /neurodegenerative disorders.
- . Congenital infections.
- . Developmental brain anomalies.
- . Drugs e.g. alcohol.

### **- Perinatal**

- . Infections.
- . Trauma.
- . Metabolic abnormalities.

### **- Postnatal**

- . Head injury.
- . Meningitis or encephalitis.
- . Poisons.

## **Clinical presentation**

Common presentations include:

1. Dysmorphisms: are the earliest signs that bring children to the attention of the pediatrician .e.g. Down syndrome.
2. Associated dysfunctions.
3. Failure to meet age –appropriate expectations (i.e. developmental delay).

## **Investigations**

It is important to establish etiology where possible in order to understand prognosis, provide genetic counseling and to ensure that associated problems are detected.

There is no specific lab test for intellectual disability. The testing needed should be based on the history and physical examination.

The most commonly used medical diagnostic testing for children with intellectual disability are:

1. Genetic testing e.g karyotyping, and testing for fragile X syndrome.
2. Metabolic tests: e.g. urinary organic and amino acids, plasma amino acids, blood lactate, thyroid function tests, mucopolysaccharide screen ...
3. Head MRI.
4. EEG.
5. Investigations for congenital infections.

## **Diagnosis**

The formal diagnosis of intellectual disability requires the administration of individual tests of intelligence and adaptive functioning .The most commonly used intelligence tests are the Bayley Scales of Infant Development, the Stanford- Binet Intelligence Scale, and the Wechsler Intelligence Scales.

## **Treatment**

There is no specific cure for intellectual disability. Therapy should consist of appropriate treatment for any underlying or associated medical condition.

## **Prognosis**

The long-term outcome of individuals with intellectual disability depends on:

1. The underlying cause.
2. The degree of cognitive and adaptive deficits.
3. The presence of associated medical and developmental impairments.
4. The capabilities of the families.
5. The school/community supports and services.
6. The training provided to the child and family.