DIABETES MELLITUS IN PEDIATRICS

-MS. PREETI SAMUEL

- The most common disorder of the pancreas is Diabetes Mellitus.
- In DM the beta cells of Islets of Langerhans fail to produce insulin.

DEFINITION-

DM is defined as a genetically acquired heterogeneous group of disorders that share glucose intolerance.

It can also be defined as a disorder of carbohydrate metabolism characterized by total or partial deficiency of hormone insulin, resulting in metabolic adjustment or physiological changes in almost all areas of body.

CLASSIFICATION-

The American Diabetes Association (1998) has classified DM into 3 groups:

1. Insulin Dependent Diabetes Mellitus (IDDM) or Type I Diabetes.
2. Non- Insulin Dependent Diabetes Mellitus
3. Gestational Diabetes

- **ETIOLOGY-**
  - Genetic factors
  - Autoimmune diseases
  - Viral infections

PATHOPHYSIOLOGY

Autoimmune destruction of beta cells

↓

Insulin production declines to less than 10-20 % of normal

↓

Decrease transportation of glucose across cell membrane

↓

Increase in blood glucose level (Hyperglycemia)

↓

When blood glucose is above 150-180 mg/dl

↓

Renal threshold of glucose is exceeded

↓

Glucose excreted in urine (Glucosuria)

↓

Osmotic shift occurs and additional water is excreted in urine (Polyuria)

↓

Increase fluid loss

↓

Stimulation of thirst center

Polydipsia

- **CLINICAL FEATURES-**
  - Polyphagia
  - Polydipsia
  - Polyuria
  - Weight loss
  - Fatigue
  - Lethargy
  - Weakness
  - Irritability
  - Abdominal discomfort
  - Dry skin
  - Delayed wound healing
  - Frequent infections
  - Decreased attention span

DIAGNOSTIC EVALUATION

- Family history of DM
- Clinical features
- Urine testing
- Laboratory tests-
  - Fasting glucose level
  - Glucose tolerance test

MANAGEMENT

- DM is a chronic disease which cannot be cured.
- Management concentrates on keeping blood sugar levels as close to normal as possible without causing hypoglycemia.

I. **Insulin therapy-**

TYPE OF INSULIN	ONSET	PEAK	EFFECT
Rapid acting	5-15min	30-90min	5 hrs
Short acting	20-60min	2-3 hrs	5-8 hrs
Intermediate acting	2-4 hrs	4-10 hrs	10-18 hrs
Long acting	3-5 hrs	10-16 hrs	18-24 hrs

- Side effects of insulin therapy:

1. Local reactions
2. Generalized reaction

II. **Glucose monitoring**

III. **Urine monitoring for sugar and ketones**

IV. **Diet, meal planning and nutrition**

V. **Exercise**

VI. **Family education**

- **COMPLICATIONS:**

- Ischemic heart disease
- Stroke
- Peripheral vascular disease
- Diabetes also causes 'microvascular' complications- (damage to small blood vessels) that result in:

1. Diabetic retinopathy.
2. Reduced vision and potentially blindness.
3. Diabetic nephropathy and chronic renal disease resulting in proteinuria.
4. Diabetic neuropathy causing numbness, tingling and pain in the feet.
5. Skin damage.
6. Diabetic foot, which may require amputation.

THANKYOU