Type 2 Diabetes Mellitus

DEFINITION

Hyperglycemia due to **insulin resistance** with relative insulin deficiency and decreased insulin sensitivity. T2DM, unlike T1DM, is not primarily due to autoimmune destruction of pancreatic insulin-producing cells.

- **Age of onset:** puberty and during adolescence
- **Risk factors:** family history, obesity, ethnicity, PCOS, in utero exposure to diabetes
- **Incidence:** 1.54 per 100,000 children per year

Recommended Glycemic Target
- ✓ HbA1C < 6.5%
- ✓ 70% time in range 3.9-10.0 mmol/L

CLINICAL PRESENTATION

Asymptomatic: found incidentally or on screening

Symptoms of hyperglycemia:
- Polyuria
- Polydipsia

Symptoms more commonly seen in T2DM:
- Acanthosis nigricans
- Genitourinary yeast infection
- Obesity

Rare but serious presentations:
- **Diabetic ketoacidosis (DKA)**
  - Abdominal pain, vomiting
  - Kussmaul breathing
  - Cerebral edema
- **Hyperosmolar hyperglycemic state (HHS)**
  - Hyperosmolarity, severe dehydration, little or no ketonuria

DIAGNOSIS

Investigations:
- **Fasting PG** ≥ 7 mmol/L
- **Random PG** ≥ 11.1 mmol/L
- **2 hr post 75g OGTT** ≥ 11.1 mmol/L
- **HbA1C** ≥ 6.5% (not as sole diagnostic test)

If asymptomatic, 2 abnormal values required
If symptomatic, 1 abnormal value sufficient

Lab findings that would support T1DM rather than T2DM:
- Positive pancreatic autoantibodies
- Low C-peptide

SCREENING FOR LONG TERM COMPLICATIONS

Microvascular Disease	
Nephropathy	Starting at diagnosis, then annually
Retinopathy	Starting at diagnosis, then q1-2 years
Neuropathy	Starting at diagnosis, then annually
Cardiovascular Disease	
Hypertension	At each routine health care visit
Dyslipidemia	Starting at diagnosis, then annually
Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)	
MASLD	Routine blood work

MANAGEMENT

General

Care team: follow-up visits every 3 months to yearly
Home glucose monitoring: manual vs continuous glucose monitoring (CGM)
Hypoglycemia: education & awareness
Lifestyle modifications: improve nutrition, physical activity, and weight loss if indicated

Pharmaceuticals

Metformin: first line medication
Subcutaneous insulin: at diagnosis if DKA or HbA1C > 9%; if glycemic control deteriorates despite lifestyle modifications and medication
GLP-1 RAs: may be considered in ages 10 years or older

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