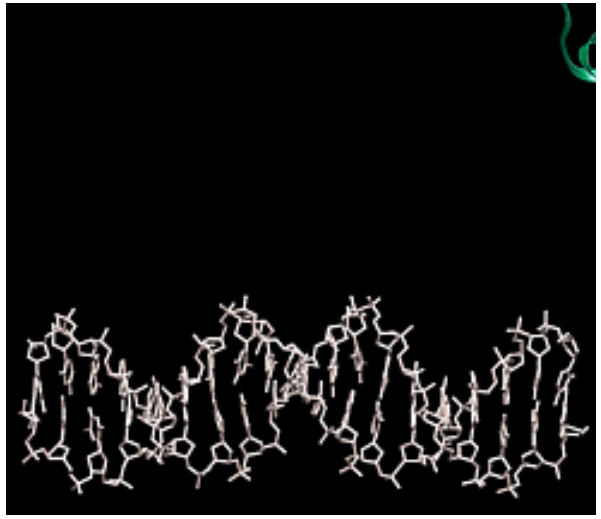

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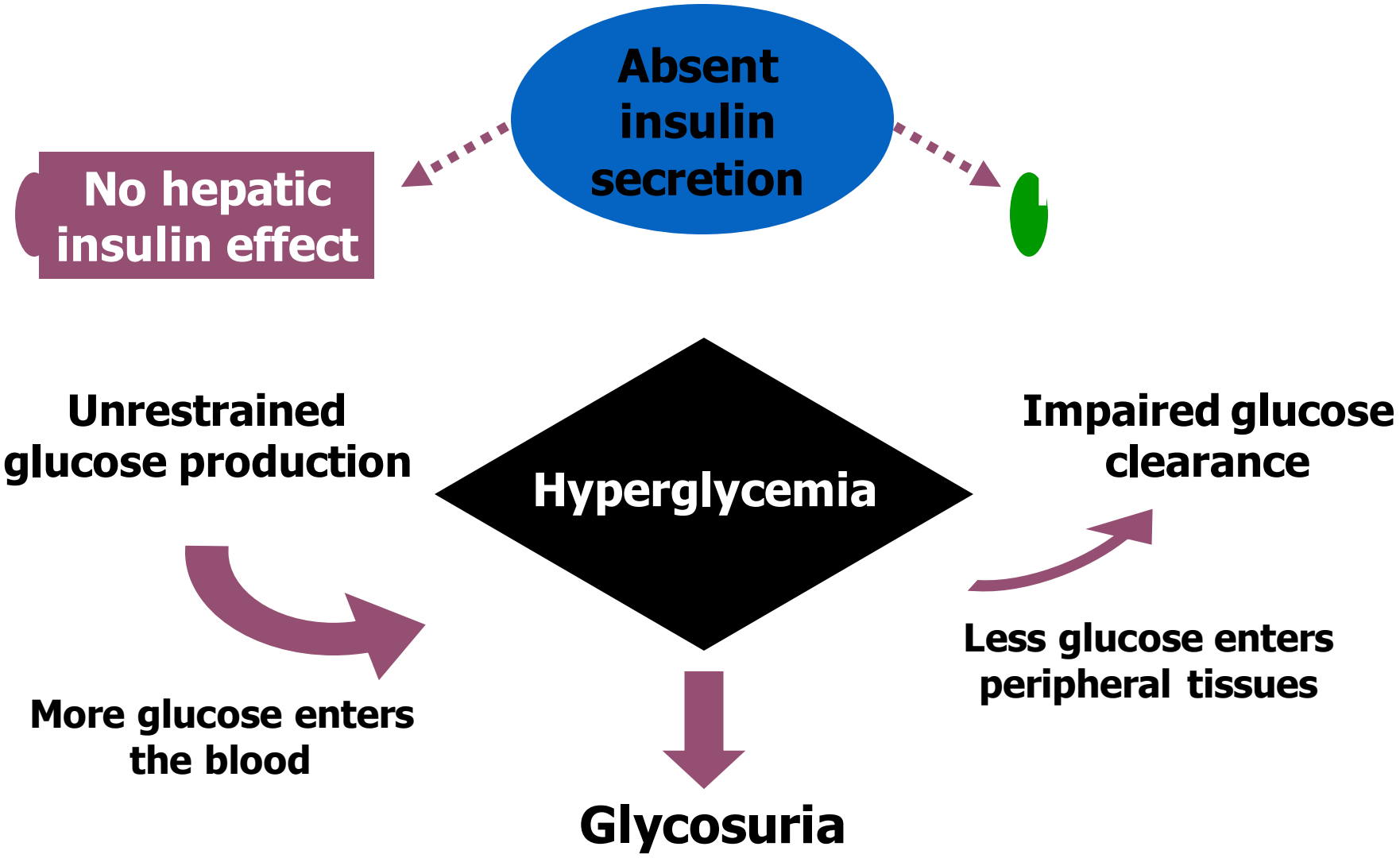
Diabetes

Classification of Diabetes Mellitus by Etiology

- **Type 1** β-cell destruction—complete lack of insulin
- **Type 2** β-cell dysfunction and insulin resistance
- **Gestational** β-cell dysfunction and insulin resistance during pregnancy
- **Other specific types**
  - Pancreatic diabetes.
  - Endocrinopathies
  - Drug- or chemical-induced
  - Other rare forms

Pathogenesis of Type 1 Diabetes : One Defect



ISLET CELLS ANTIBODIES:

- **A heterogeneous group of AB against a variety of cytoplasmic islet cell antigens**
- **Not exclusively against *Beta* cells. Other islet cells are also targets.**
- **Highly positive esp. in the pre- diabetic phase**
- **More positive at onset than later.**
- **Positivity decreases rapidly with**

duration of diabetes .

ANTI GLUTAMIC ACID DECAROXYLASE (GAD) AB

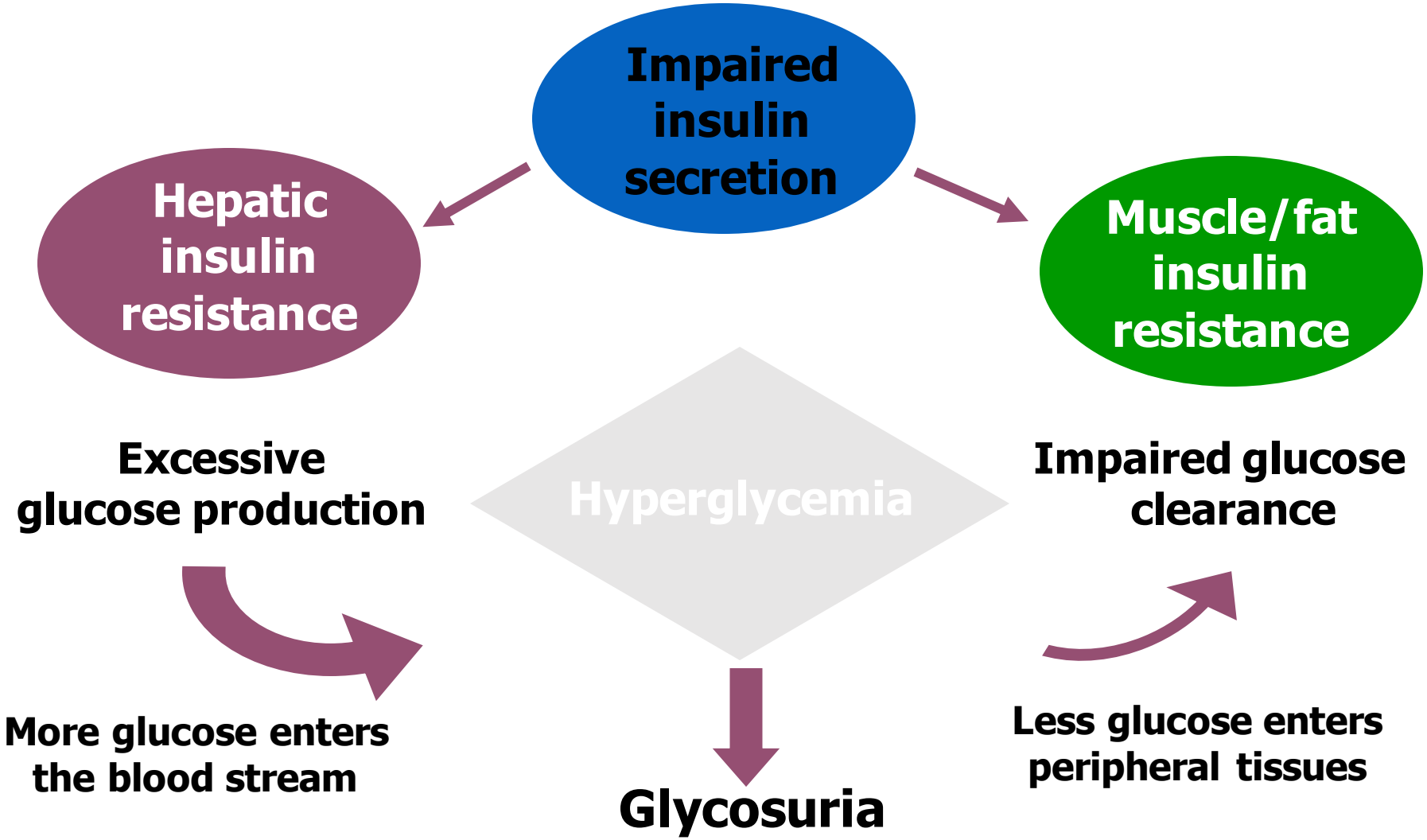
Anti GAD Antibodies

- **Present in 75- 84 % of recent onset DM type1.**

D.M. Type 1

The combination of genetic ,environmental and autoimmune factors ultimately leads to β- cell destruction, which is an insidious process that may take up to 10 yrs before completion; once the β- cell mass is <5-10% of its original amount, symptoms of diabetes become manifest.

Pathogenesis of Type 2 Diabetes : Two Defects



ROLE OF DIET, OBESITY, AND INFLAMMATION

- Increasing weight and less exercise
- Obesity epidemic
- Increasing T2DM in children and adolescents

MAJOR RISK FACTORS (Type2 DM)

- FH of DM
- Overweight (BMI > 25 kg/m2)
-physical inactivity
-Race/ethnicity (African-Americans, Hispanic-Americans)
- History of IFG or IGT
-History of GDM or delivery of a baby weighing >4.5 kg
-Signs of insulin resistance or conditions associated with insulin resistance:
    *Hypertension (140/90 mmHg in adults)
    *HDL cholesterol 35 mg/dl and/or a
        triglyceride level 250 mg/dl
    *Polycystic ovary syndrome
    *acanthosis nigricans

Type 1 versus type 2 diabetes

1 Body habitus :T2DM: overweight.T1DM:lean

2 Age :T2DM :after puberty.

T1DM 4 -6 yrs and 10 -14 yrs of age

3 Insulin resistance :T2DM: acanthosis nigricans, HTN, dyslipidemia, and PCOS

4 FH: (+) in both type 2 > type 1

5 T1DM is suggested by +:GAD, tyrosine phosphatase (IA2), and/or insulin Abs

Up to 30 % of T2DM have + Abs

MODY

- MODY is non-insulin requiring form of diabetes,occurring in children and young adults,resulting from genetic defect in beta-cell function,and inherited in autosomal dominant trait(AD)

MODY

MATURITY ONSET DIABETES OF THE YOUNG (MODY)

- Clinical presentation partly similar to type 2 DM but occurring in young age group-mostly adolescents

- Autosomal dominant inheritance; 5 different gene defects described

- All relatively rare.

Clinical Features

	Obesity	Insulin resistance	Autoimmunity
Type 1	No	No	Yes
Type 2	Yes	Yes	No
MODY	No	No	No

Gestational Diabetes

- Hyperglycemia during pregnancy—usually resolves after birth
- High risk of perinatal morbidity and mortality

Gestational Diabetes

- High risk of later type 2 diabetes in both mother and baby.
- Diagnosed by specific glucose tolerance test methods.
- Requires intensive dietary and glycemic management.

Symptoms

- Polyuria, increased frequency of urination, nocturia.
- Increased thirst, and dry mouth
- Weight loss
- Blurred vision
- Numbness in fingers and toes
- Fatigue
- Impotence (in some men)

Signs

- Weight loss: muscle weakness
- Decreases sensation
- Loss of tendon reflexes
- Foot Inter-digital fungal infections
- Retinal changes by fundoscopy

Criteria for the diagnosis of diabetes

1. **A1C ≥6.5 percent**.

2**. FPG ≥126 mg/dL** . Fasting is defined as no caloric intake for at least 8 hr.

3. **Two-hour plasma glucose ≥200 mg/dL** during an OGTT. 75 g anhydrous glucose dissolved in water.

4. In a patient **with classic symptoms** of hyperglycemia or hyperglycemic crisis, **a random plasma glucose ≥200 mg/d**L .

* In the absence of unequivocal **symptomatic** hyperglycemia, criteria 1-3 should be confirmed by repeat testing.

Management of diabetes

1. Lifestyle modifications:
- Medical nutrition therapy
- increased physical activity
- weight reduction
2. Oral Drug Therapy/Noninsulin SC therapy
3. Insulin therapy