



Diabetic Emergencies

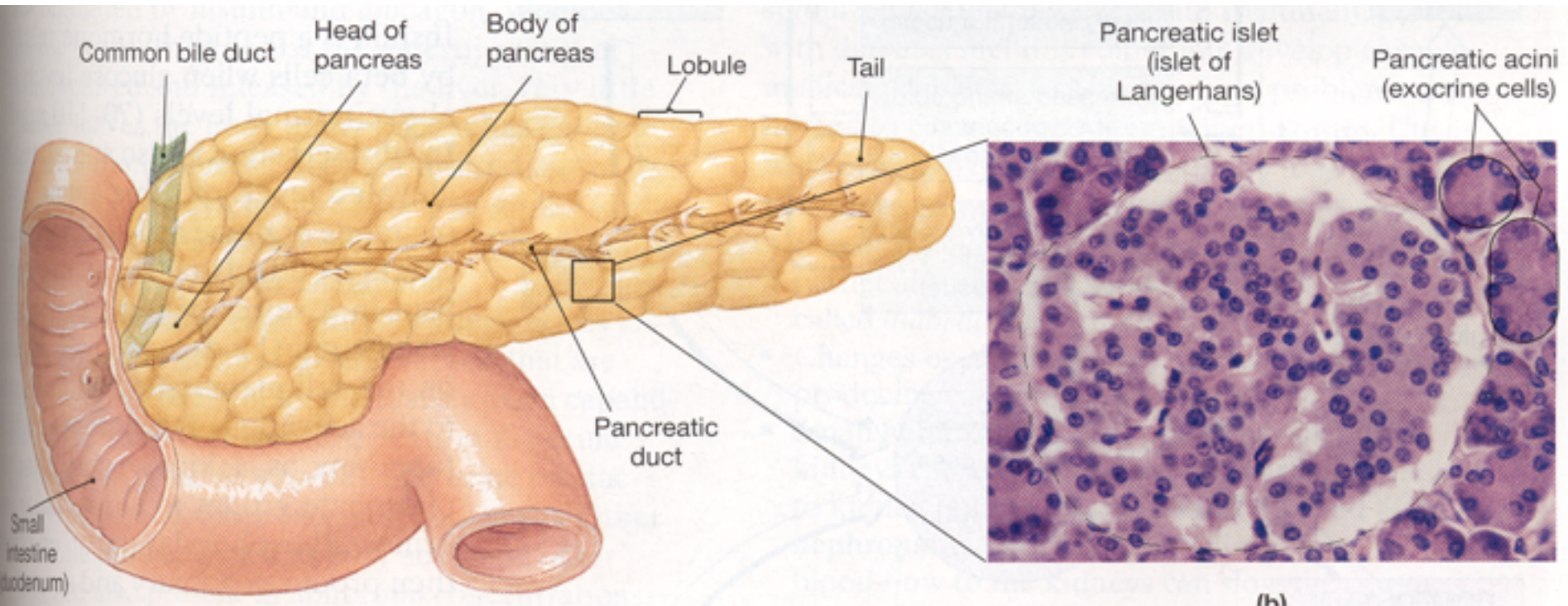
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Diabetes Mellitus

- Types of diabetes
 - TI: insulin-dependent (IDDM)
 - Require insulin
 - TII: non-insulin-dependent (NIDDM)
 - Require oral medications or insulin
- A&P of diabetes
 - Pancreas
 - Insulin
 - Glucose

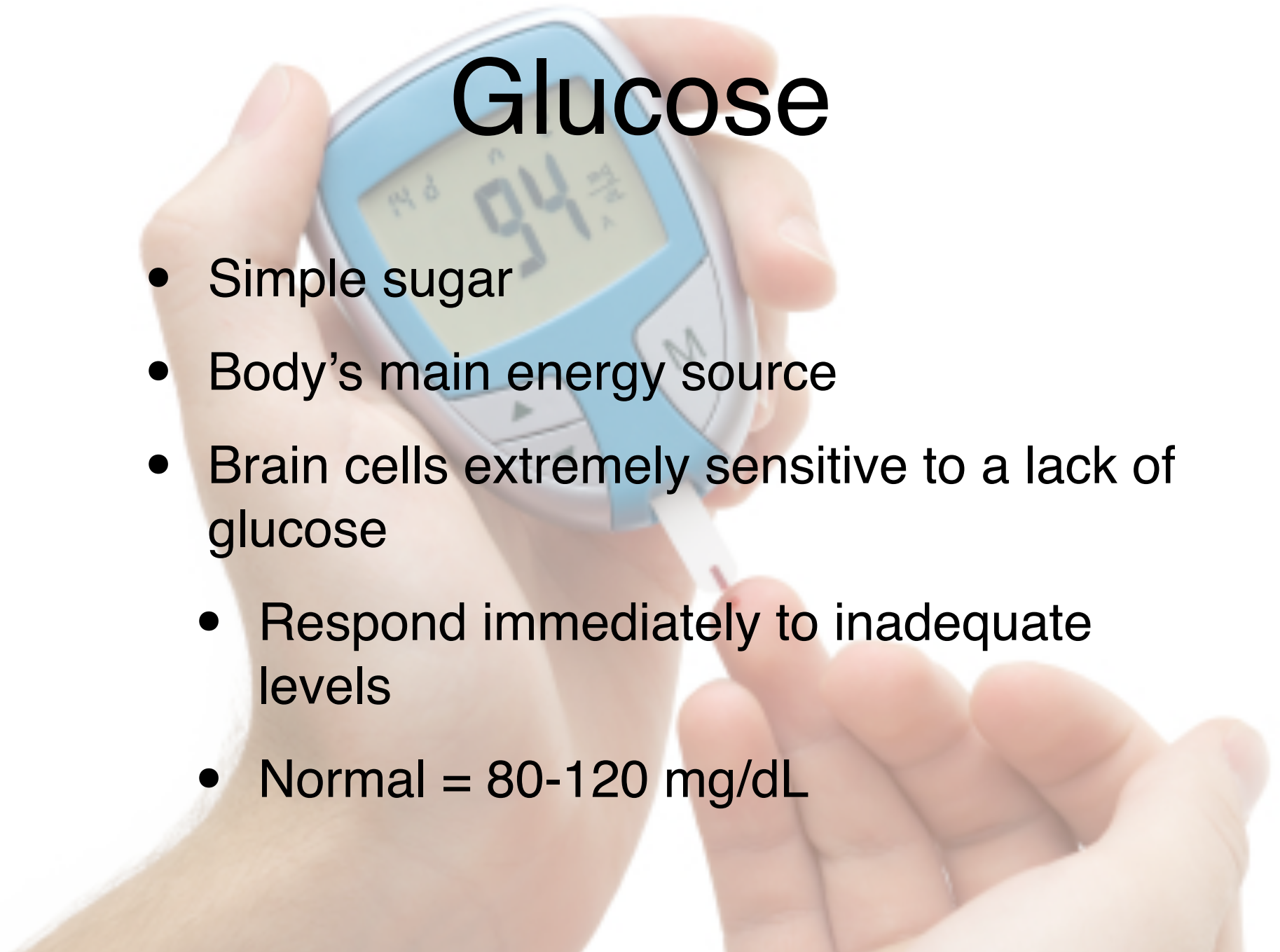
Pancreas



- α cells: produce glucagon, \uparrow 's blood glucose
- β cells: produce insulin, \downarrow 's blood glucose

Glucose

- Simple sugar
- Body's main energy source
- Brain cells extremely sensitive to a lack of glucose
- Respond immediately to inadequate levels
- Normal = 80-120 mg/dL



Insulin

- Secreted by the pancreas when BGL is elevated
- Facilitates the transport of glucose across cellular membranes
 - Excess glucose stored in the liver (glycogen)
- ↓'s blood glucose by ↑ing rate of glucose uptake in cells
 - Glucose can be stored or used immediately in cells
 - Brain does *not* require insulin!

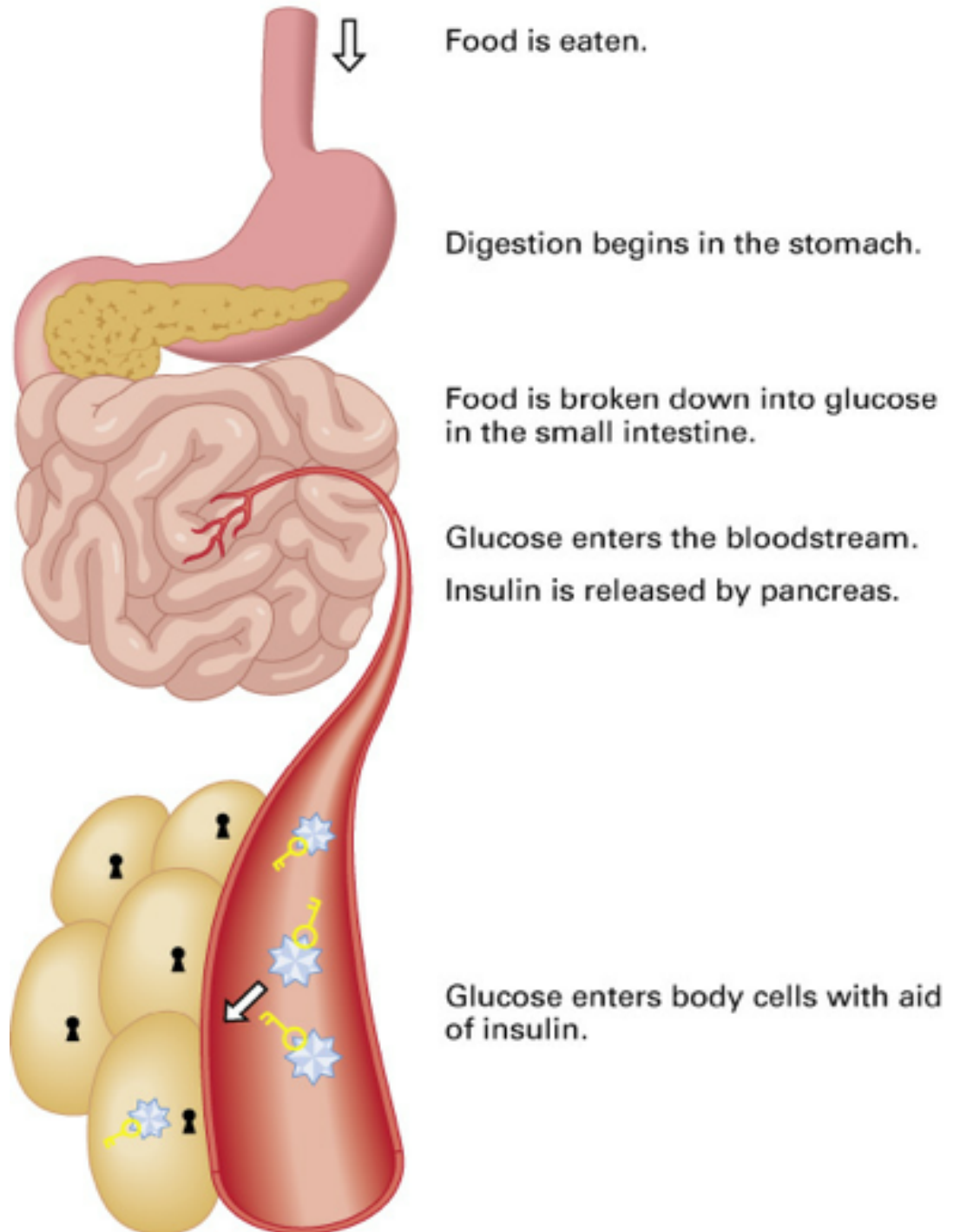
Glucagon

- Hormone
 - Released when insulin levels low
- ↑'s blood glucose by ↑ing rate of glycogen breakdown in liver
 - Glycogenolysis
 - Glycogen is stored energy, ready to be used when needed!
- ↑'s breakdown of fats in adipose tissue

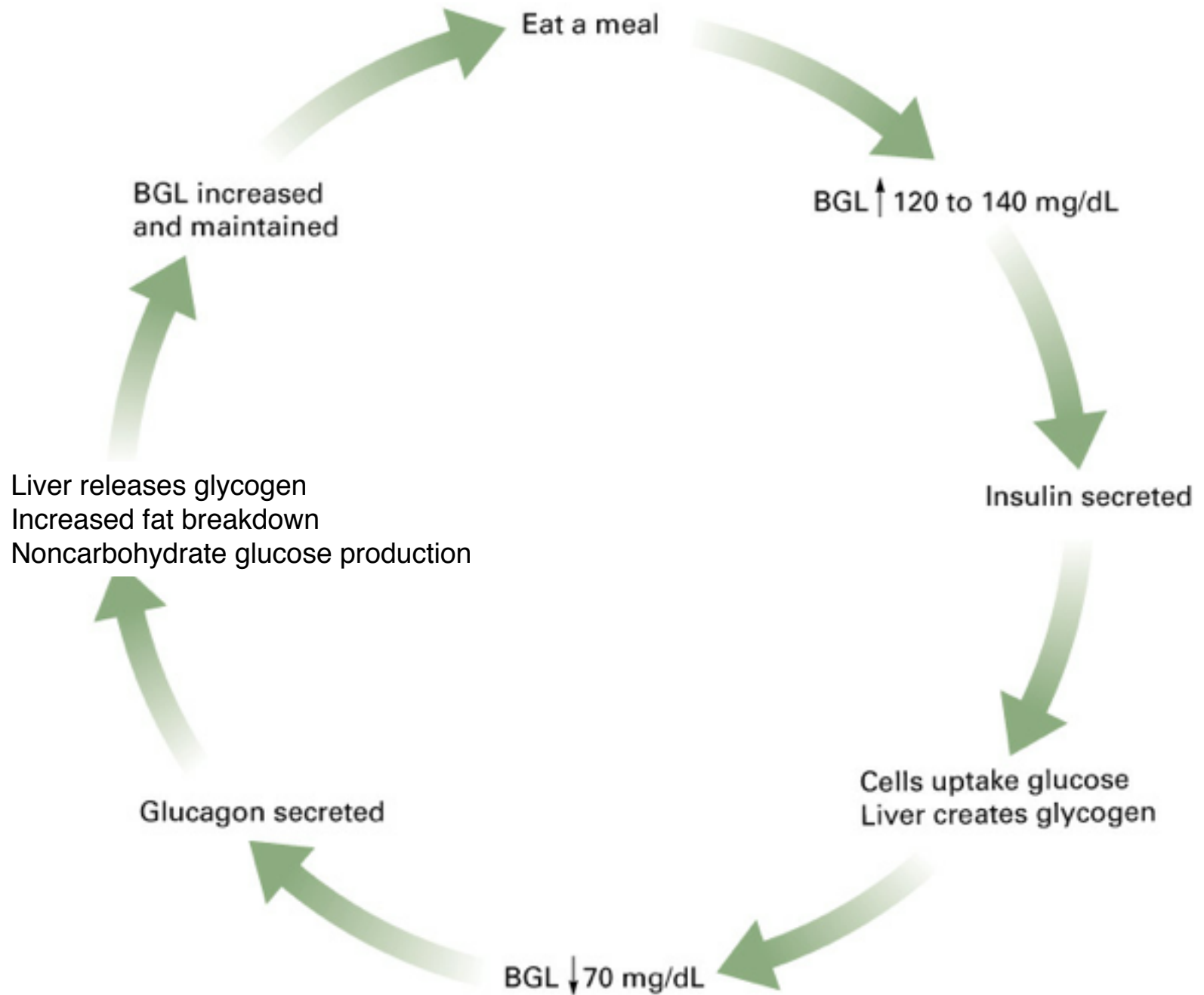
Epinephrine

- Secreted when BGLs are low
- Inhibits insulin secretion
- Promotes glycogenolysis & gluconeogenesis
- Epi is responsible for many of the S/S we see in hypoglycemia

- Normal glucose utilization



Normal Glucose Regulation

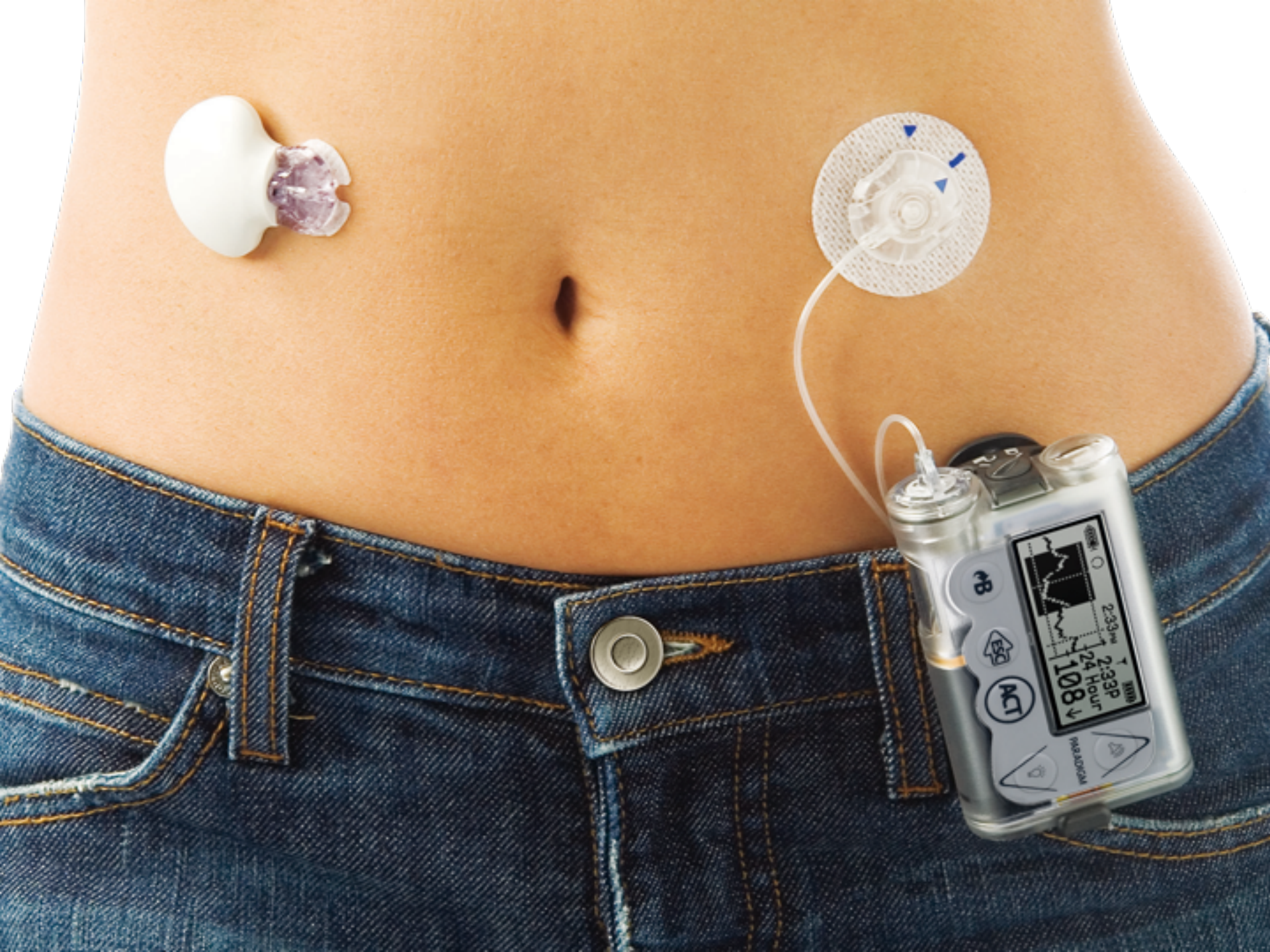


Type 1 DM

- AKA IDDM: “Juvenile-onset diabetes”
- Very little or no insulin production
- Autoimmune response destroys β -cells
- Must take oral antihyperglycemic meds or insulin

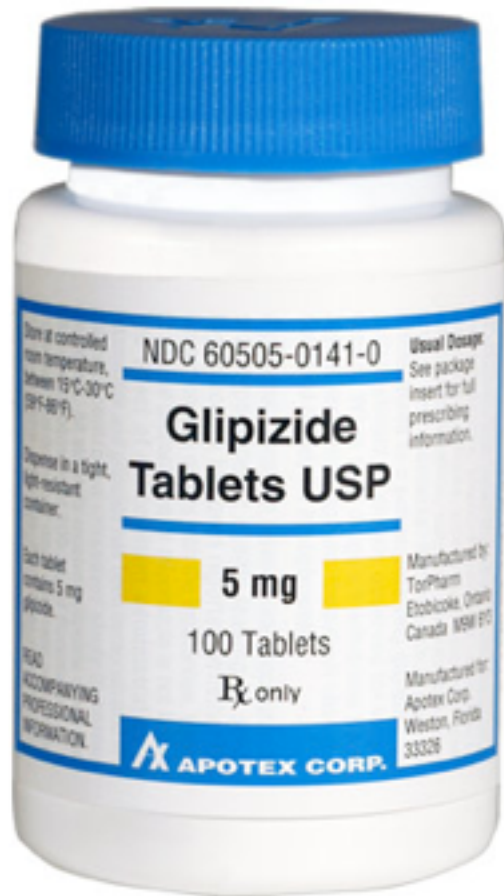






Type 2 DM

- AKA NIDDM: “Adult onset diabetes”
- Moderate insulin production combined with ↓ response to insulin at the cellular membrane
- Can be controlled with diet and exercise
- Pharmacological control
 - Oral antihyperglycemics



Various oral antihyperglycemics will:

- ↑ insulin release
- ↓ glucose release from liver
- ↓ uptake of carbohydrate in gut



Problems related to diabetes:

- Peripheral neuropathy
- Decreased peripheral circulation

Can lead to soft tissue injuries and infection.







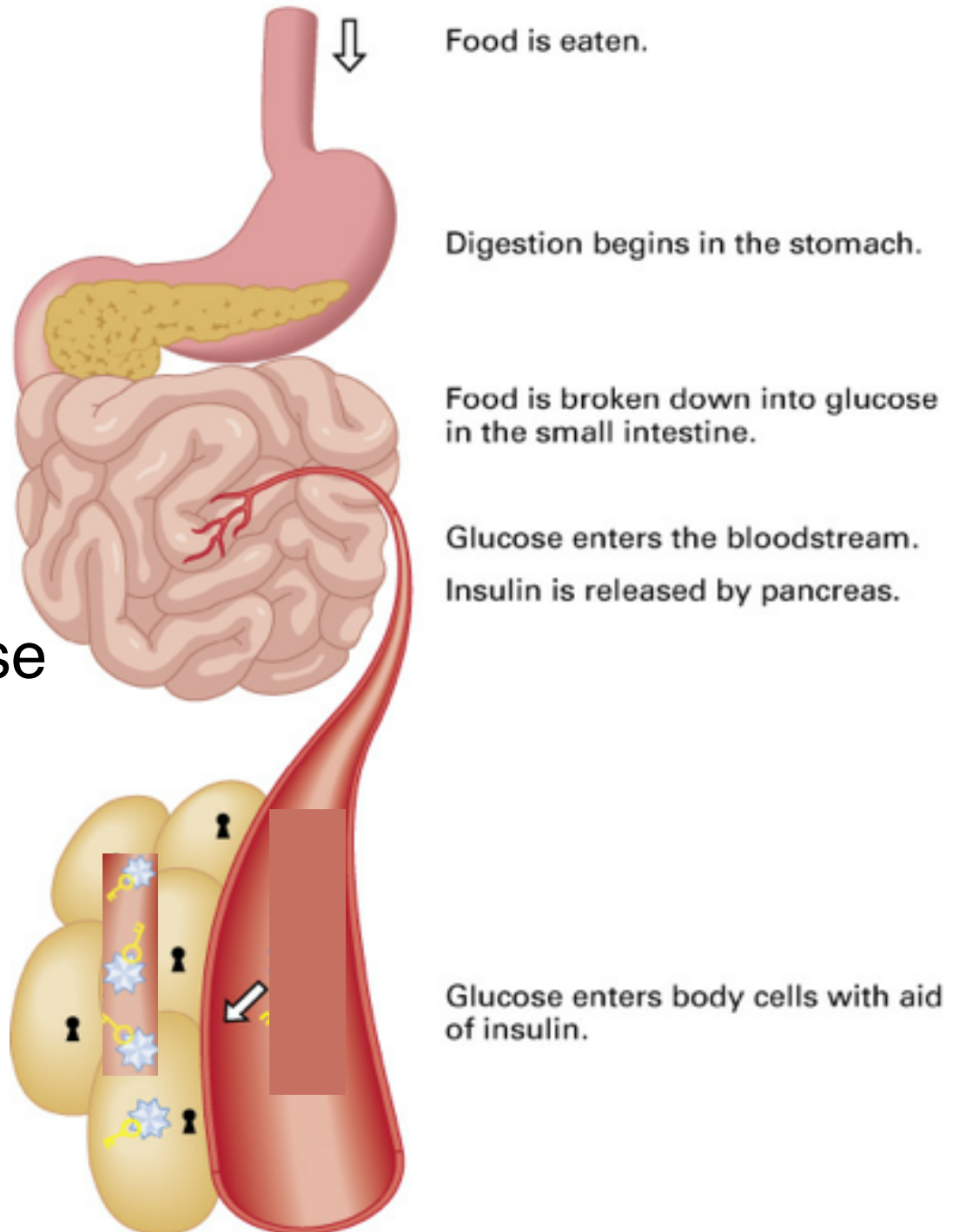




Causes of Hypoglycemia

- Diabetic took too much insulin or oral antihyperglycemic medication
- Diabetic has not eaten enough
 - or, has vomited!
- Diabetic has overexerted themselves
- Diabetic is stressed, has infection

- Abnormal glucose utilization: too much insulin/too little glucose



S/S: Hypoglycemia

- Weakness, dizziness
- Disorientation, AMS, LOC
- Cool, pale, diaphoretic skin
- Seizures, stroke-like symptoms



Epi Release

- Tachycardia
- Cool, pale, and diaphoretic skin
- Dilated pupils



Stroke Mimicker

- Hypoglycemia can present with S/S of CVA
- Pt is not having a stroke until blood glucose abnormalities are corrected!



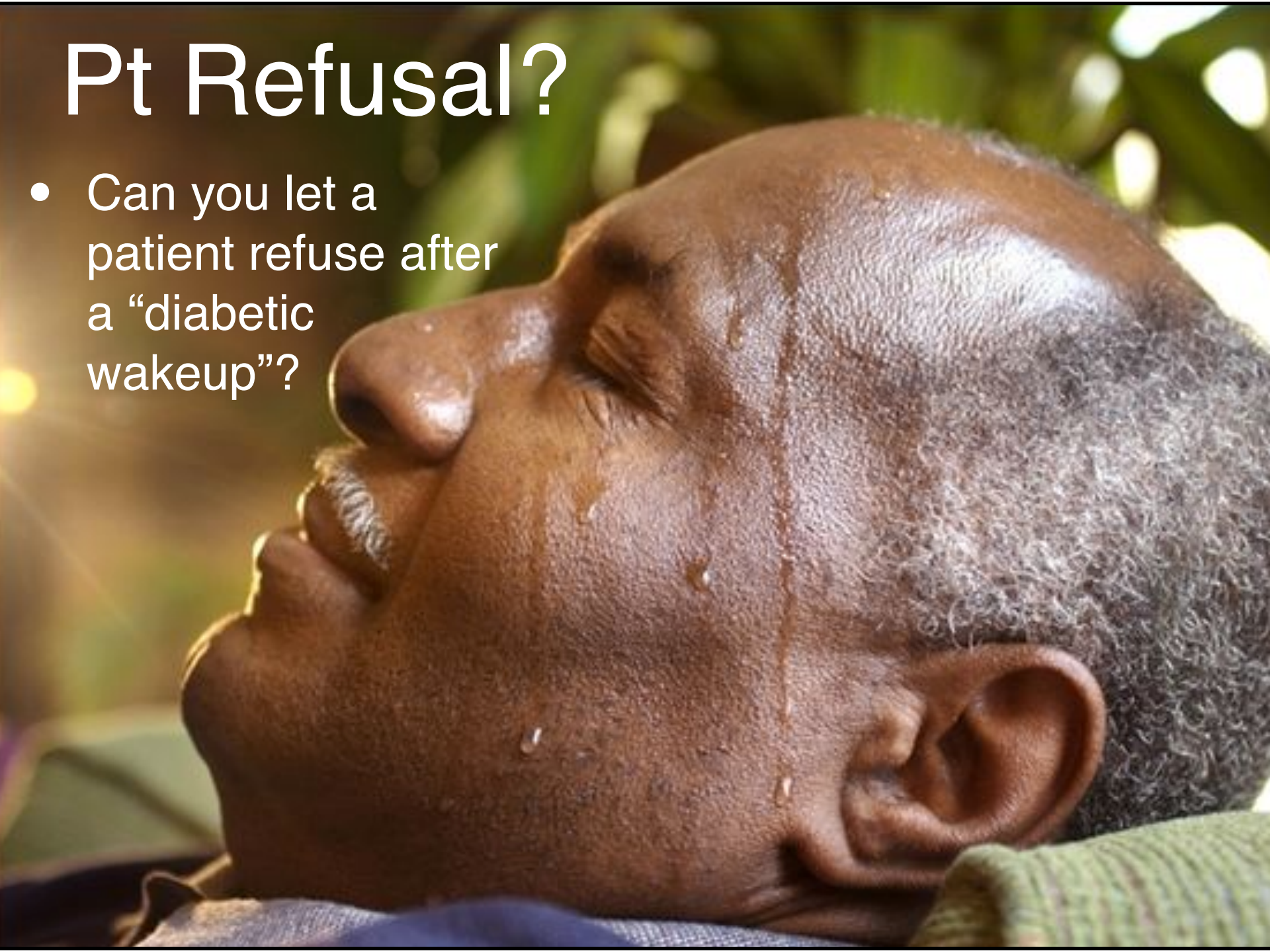
Tx: Hypoglycemia

- Open the airway
- Assure adequate ventilation
- Administer oxygen
- ALS
- Assess BGL, if able
- Oral glucose



Pt Refusal?

- Can you let a patient refuse after a “diabetic wakeup”?



Pt Refusal?

- Is the cause explainable and does not include illness or OD?
- Can the pt eat a meal?
- Will there be someone with pt?
- Sign refusal?



What you do not want to have happen...



Hyperglycemia

- Two conditions that can arise from hyperglycemia:
 - DKA
 - HHNS



Diabetic Ketoacidosis

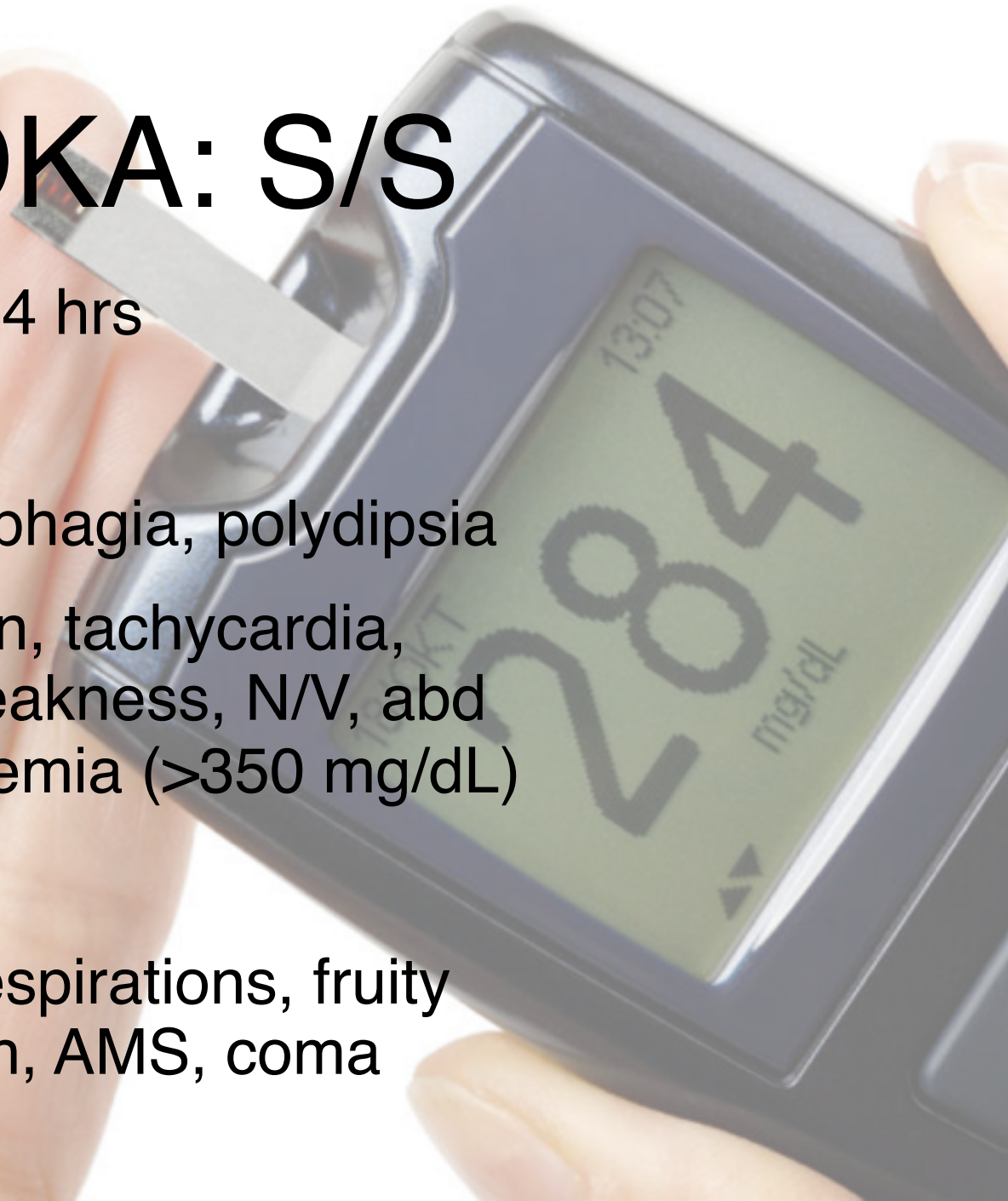
- Also called “diabetic coma”, DKA
- Insulin deficiency with \uparrow glucagon activity
- Significant amount of glucose in blood
 - Osmotic diuresis = dehydration, ‘lyte imbalance
- Fats and proteins broken down for energy
 - Ketosis, then DKA occurs
- Death can occur

Causes of Hyperglycemia

- Patient with new onset diabetes
- Diabetic has not taken diabetic medications
 - oral meds, insulin
- Diabetic has overeaten
- Diabetic is stressed, has infection

DKA: S/S

- Onset over 12-24 hrs
- Initial phase:
 - Polyuria, polyphagia, polydipsia
 - Warm, dry skin, tachycardia, poss ↓ BP, weakness, N/V, abd pn, hyperglycemia (>350 mg/dL)
- Late phase:
 - Kussmaul's respirations, fruity odor on breath, AMS, coma



Hyperglycemic Hyperosmolar Nonketotic Syndrome

- Serious complication associated with T1D DM
 - Often precipitated by stress (illness, trauma, psych)
 - Stress results in decreased insulin levels
- HHNS present when 2 conditions occur
 - Sustained hyperglycemia- can be \uparrow 1000 mg/dl
 - Osmotic diuresis = dehydration, 'lyte imbalance
- Insulin activity sufficient to prevent DKA
- 40 –70 % mortality

HHNS: S/S

- Onset over several days
- Polyuria, polydipsia, polyphagia
- Tachycardia, orthostatic hypotension
- AMS – big indicator
- Hyperglycemia (greater than 600 mg/dL)
- Remember, will not have Kussmaul's respirations!

Tx: Hyperglycemia

- Tx for DKA & HHNS is same
- ABC's... duh
- 100% O₂ via appropriate device
- ALS
- What if you don't have a BGL? Is administering glucose bad?



Glucose

- Indications:
 - AMS with/without known Hx DM
- Contraindications:
 - Unresponsive, unable to swallow
 - Known Hx DM, has not taken insulin for days