GLP-1 RECEPTOR AGONISTS

FLAME LECTURE: 6

LAWSON 11.1.18

OBJECTIVES

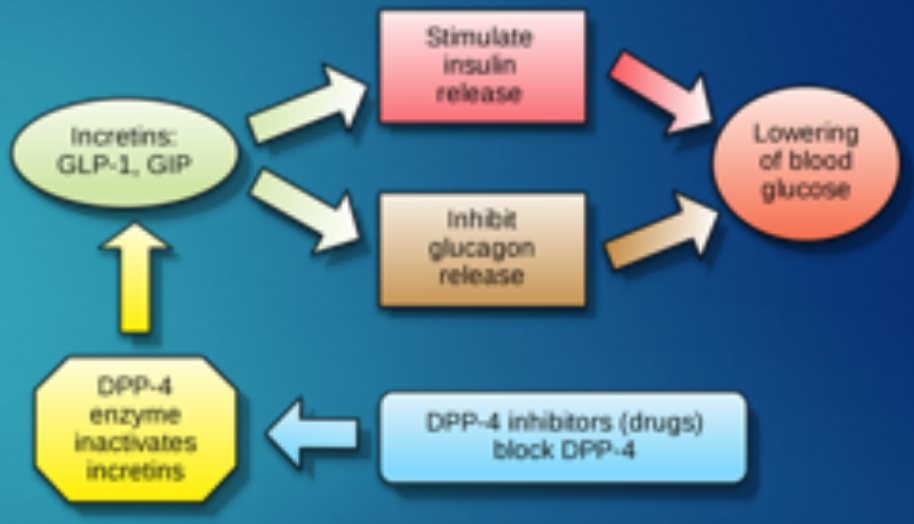
- To understand the mechanism of action of GLP-1 Receptor Agonists
- To counsel the patient regarding the benefits, risks, and uses for GLP-1 Receptor Agonists
- Prerequisites:
  - NONE
- See also – for closely related topics
  - FLAMEs on Type 2 DM / Medications for treatment of DM

TYPES OF GLP-1-R AGONISTS

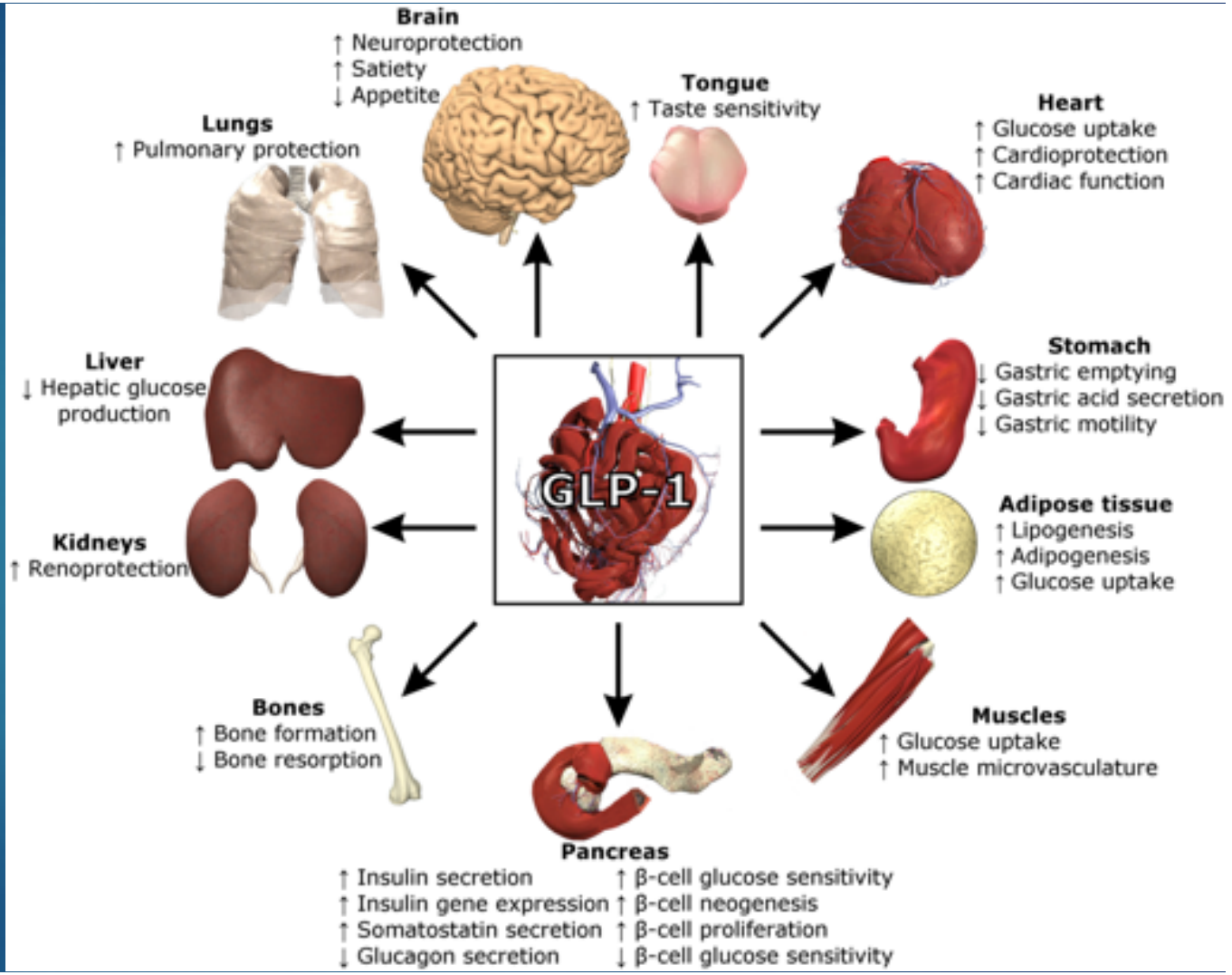
- FDA-approved GLP-1 Receptor Agonist Medications
  - Exenatide (Byetta or Bydureon)
  - Liraglutide (Victoza or Saxenda)
  - Lixisenatide (Lyxumia)
  - Albiglutide (Tanzeum)
  - Dulaglutide (Trulicity)
  - Semaglutide (Ozempic)

MECHANISM OF ACTION

- GLP-1 is a peptide hormone that increases insulin secretion and decreases glucagon secretion from the pancreas in the presence of elevated blood glucose
- These medications delay gastric emptying, decreasing postprandial blood glucose, and increase satiety
- Good for decreasing glucose as well as weight loss
- These medications must be injected subcutaneously



MECHANISM OF ACTION (CONT'D)



INDICATIONS / BENEFITS

- Not recommended as first line therapy for blood glucose control
- Recommended for use in type 2 diabetics when blood sugar is not well controlled on oral medication or on insulin
- Clinical trials show a reduction in baseline Hemoglobin A1c ranging from 0.87 to 1.9
- Can be used in combination with metformin or basal insulin
- Not recommended in type 1 diabetes

ADVERSE EFFECTS

- Most common adverse effects are GI complaints and injection-site reactions
  - Nausea, vomiting, diarrhea
- Hypoglycemia may occur when used in combination with insulin secretagogues or insulin
  - Consider lowering dose of sulfonylurea or insulin when starting GLP-1 agonist
- Acute renal failure and worsening of chronic renal failure can occur

CONTRAINDICATIONS

- Black Box Warning!!
  - Causes thyroid C-cell tumors in rodents; human risk not determined
  - Contraindicated in patients with personal or family history of medullary thyroid carcinoma or in patients with multiple endocrine neoplasia syndrome type 2 (MEN 2)
- Risk of pancreatitis reported; discontinue if pancreatitis suspected and do not restart if confirmed

REFERENCES

- Dulaglutide (Rx). (2017, September 03). Retrieved October 28, 2018, from https://reference.medscape.com/drug/trulicity-dulaglutide-999965
- Trujillo JM, Nuffer W, Ellis SL. GLP-1 receptor agonists: a review of head-to-head clinical studies. *Ther Adv Endocrinol Metab*. 2015;6(1):19-28.