DPP-4 Inhibitors: 'GLIPTINS'

FLAME LECTURE: 5

HARBOLOVIC 10.15.18

LEARNING OBJECTIVES

- To understand the mechanism of action of DPP-4 inhibitors
- To counsel the patient regarding the benefits, risks, and uses for DPP-4 inhibitors
- Prerequisites:
  - NONE
- See also – for closely related topics
  - FLAMEs on Type 2 DM / Medications for treatment of DM

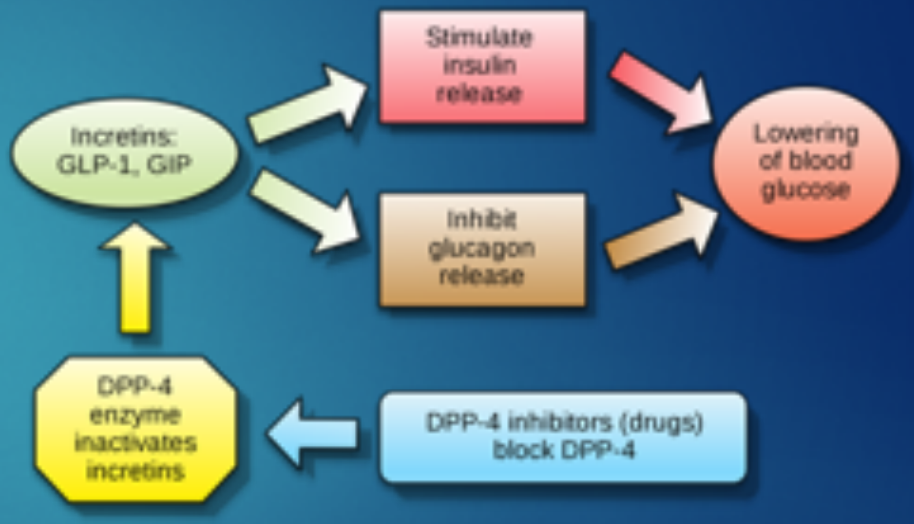
OVERVIEW

- Second line oral agent used in the management of T2DM
- Includes the following medications in the USA:
  - Sitagliptin (Januvia)
  - Saxagliptin (Onglyza)
  - Linagliptin (Tradjenta)
  - Alogliptin (Nesina)
- Generally used in pts who do not respond to (or are intolerant of) Metformin, sulfonylureas, or thiazolidinediones

1. Dungan. DPP-4 treatment DMT2. 2018

MECHANISM OF ACTION

- Dipeptidyl peptidase 4 (DPP-4) acts to inhibit incretins GIP and GLP-1 at the pancreatic islets
  - Thus, DPP-4 inhibitors (gliptins) work by inhibiting the DPP-4 enzyme from inactivating these incretins
- The incretins GIP and GLP-1 are involved in stimulating insulin production and inhibiting glucagon release



INDICATIONS / BENEFITS

- Used as an adjunct when diabetes is refractory to monotherapy, or when pts have contraindications like chronic kidney disease
- Beneficial in patients who are susceptible to hypoglycemia
  - Monotherapy does not usually cause hypoglycemia
- Minimum GFR required of >45mL/min
- Slows gastric emptying and is weight neutral
- Sitagliptin (Januvia) decreases A1c an average of 0.8%

1. Dungan. DPP-4 treatment DMT2. 2018
2. Whitley. Sitagliptin (Januvia) Treatment DMT2. 2007

ADVERSE EFFECTS

- The most common adverse effects occurring in up to 5% of patients are: Upper respiratory tract infection (URIs), UTIs, nasopharyngitis, and headache
- There is an increased risk of hypoglycemia if used in combination with a sulfonylurea or insulin

3. Pathak. DPP-4 MGMT Diabetes. 2010

OTHER REFERENCES

1. Dungan MD, Kathleen, DeSantis MD, Anthony. (2018, April 25) Dipeptidyl peptidase-4 (DPP-4) inhibitors for the treatment of type 2 diabetes mellitus. Retrieved from http://uptodate.com
2. Whitely, PharmD. (2007, Sept 15) Sitagliptin (Januvia) for the Treatment of Patients with Type 2 Diabetes. Retrieved from https://www.aafp.org/afp/2018/0401/p437.html
3. Pathak PharmD. (2010 September) Dipeptidyl Peptidase-4 (DPP-4) Inhibitors In the Management of Diabetes. Retrieved from: https://www.ncbi.nlm.nih.gov
4. http://annals.org/aim/fullarticle/2595888/oral-pharmacologic-treatment-type-2-diabetes-mellitus-clinical-practice-guideline