GLP -1 Receptor Agonists (GLP-1 RA)

Prelims: *Current events of national and international importance*

Why in News?

Recent studies have shown that GLP-1 Receptor Agonists (GLP-1 RA) can be used to treat Alzheimer's and Diabetes.

- **GLP-1 RA –** These are synthetic drugs that *mimic the actions of GLP-1.*
- **Longer lifetime** – By fatty acid acylation that protects GLP-1 from breaking, it's been able to extend that to up to 160 hours.

***Fatty acid acylation** is drug molecule attached to a fatty acid, in this case, GLP-1. That will allow the drug to bind to a natural protein called **albumin**.*

Albumin is a protein that plays a crucial role in transporting various substances throughout the body, including fatty acids.

- **Feature** – It *solves druggability problem* of GLP-1, by attaching to albumin, that protect the drug from degradation, from being cleared by the kidneys.

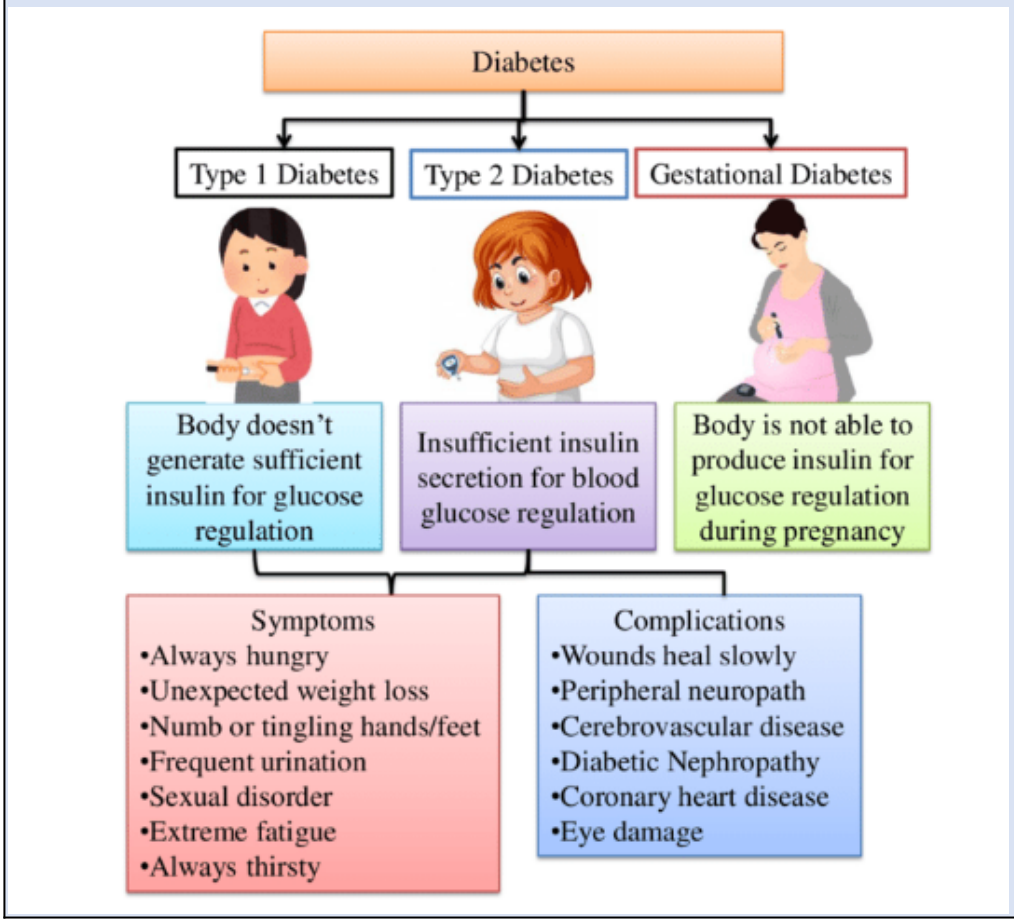
***Druggability** is the ability of a protein to bind a modulator and produce a desired therapeutic effect.*

  - **Availability of GLP-1 RA** –They are available in different forms, including injectable medications and, increasingly, oral formulations.
  - **Uses –** Stimulates insulin secretion to lower blood sugar.
  - Manages appetite and weight
  - **Slows gastric emptying** – Contribute to a feeling of fullness and reduce calorie consumption.
  - It may have neuroprotective effects, potentially improves conditions like Alzheimer's and Parkinson's disease (as per National Institutes of Health)
  - It reduces overall inflammation in the body
  - **Treatment** – Type 2 diabetes and obesity.

Quick facts

Diabetes

• It is ***chronic disease*** where blood glucose (sugar) levels are too high, either because the body doesn't produce enough insulin, or because the body can't effectively use the insulin it does produce.
• **Treatment** - Managing blood sugar levels and preventing complications, with approaches varying based on diabetes type.
• **Lifestyle changes** – Like diet and exercise are crucial, alongside medications like insulin (primarily for Type 1) or oral medications (often for Type 2).
• Monitoring blood sugar, weight management, and stress management also play important roles.



Reference

The Indian Express| GLP-1 RA

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