



## Treatment of type 2 diabetes, GLP-1 Agonist and a DPP-4 Inhibitor

Adil Omar Bahathiq\*

### Introduction

Glucagon-like peptide-1 (GLP-1) is a peptide hormone synthesized and secreted by the intestinal enteroendocrine L-cells and certain neurons by the differential processing of proglucagon. GLP-1 (7-36) amide has a various set of peripheral activities which all serve to promote upgraded glucose tolerance, and thus it has turned into the reason for new therapies for type 2 diabetes [1]. Furthermore, it is known that GLP-1 administration leads to decreased food intake and delayed gastric emptying. Studies have revealed that continuous GLP-1 infusion in type 2 diabetes patients led to a significant weight loss and reduction in appetite as compared to placebo, where no significant change was observed in the weight or appetite. GLP-1 was initially characterized as an incretin, a gastrointestinal hormone discharged amid feast assimilation that empowers prandial insulin discharge during meal absorption. Patients who are suffering from the diabetes have lower levels and disabled activity of glucagon-like peptide-1 (GLP-1). GLP-1 agonist drugs ("incretin mimetics") mimic the activity of this incretin hormone [2-4]. They are basically comparative, yet not exactly the same as endogenous GLP-1. (Liraglutide is more like endogenous GLP-1 than exenatide.) GLP-1 has the amino acid alanine in the second N-terminal position, leading to inactivation by (dipeptidyl peptidase- IV) DPP-IV were the greater part of discharged GLP-1 is degraded by nearby DPP-IV preceding to absorption into plasma, Suggesting that the glucose-bringing down impact of GLP-1 is constrained by its short half-life. Dipeptidyl peptidase-4 (DPP-IV), or adenosine deaminase complexing protein-2 as it is also known, is an antigenic enzyme which is associated with signal transduction, apoptosis, and immune regulation. This enzyme cleaves X-proline/alanine dipeptides from the N-terminal of substrate polypeptides such as GLP-1. DPP-IV belongs to a serine protease family likewise including DPP-VIII and -IX, [4]and in vitro substrates of DPP-IV which also includes Gastric inhibitory polypeptide (GIP), Glucagon-like peptide-1 and -2 (GLP-1 and GLP-2), gastrin-releasing peptide (GRP), enterostatin, neuropeptide Y, peptide YY, Insulin-like growth factor 1 (IGF-1), and several of inflammatory peptides [5]. DPP-IV inhibitors (vildagliptin, sitagliptin, linagliptin, saxagliptin, and alogliptin) are a class of hypoglycemics that can be used for treating diabetes mellitus type 2. These are the Investigational agents which are used in the treatment of T2DM include GPR119 and GPR40 receptor agonists that stimulate

the release of GLP-1 from L cells. Neither DPP-4 inhibitors nor GLP-1 agonists are FDA-or Health Canada-endorsed for use in combination with each other, nor do treatment guidelines prescribe utilization of the combination. But there is no strong evidence to support the utilization of these drugs together. The theory behind utilizing a GLP-1 agonist with a DPP-4 inhibitor is that the combo will support the Viability by giving additional incretins (via the GLP-1 agonist) and enhance the impact of endogenous incretins (by means of the DPP-4 inhibitor). But, in an animal study, the coadministration of liraglutide and sitagliptin did not result in increased blood levels or any change in the pharmacokinetics of liraglutide. The utilization of a DPP-4 inhibitor did not seem to decrease the breakdown of liraglutide. In addition to a lack of good confirmation for benefits with the blend of a GLP-1 agonist and a DPP-4 inhibitor, it's too early to tell if there may be an increased risk of side effects. Both drug classes have been related with uncommon cases of acute pancreatitis [5,6]. Plus, the cost of medications in these classes is generally high in examination with different medications for treating diabetes [7].

### References


1. Pratley RE, Gilbert M (2008) Targeting incretins in type 2 diabetes: role of GLP-1 receptor agonists and DPP-4 inhibitors. *Rev Diabet Stud* 5: 73-94.
2. Sriharan M (2012) Medical Information. Novo Nordisk, Princeton.
3. S Brunton (2014) GLP-1 receptor agonists vs. DPP-4 inhibitors for type 2 diabetes: is one approach more successful or preferable than the other? *Int J Clin Pract* 68: 557-567.
4. Gerald H Tomkin (2014) Treatment of type 2 diabetes, lifestyle, GLP1 agonists and DPP4 inhibitors *World J Diabetes* 5: 636-650.
5. Bahathiq AO (2017) Childhood obesity in Makkah City. *Endocrinol Diabetes Res* 4:1.
6. Ahrén B1, Schmitz O (2004) GLP-1 receptor agonists and DPP-4 inhibitors in the treatment of type 2 diabetes. *Horm Metab Res* 36: 867-76.
7. Bo.Ahren (2013) Incretin therapy for type 2 diabetes: GLP-1 receptor agonists and DPP-4 inhibitors 10: 31-36.

### Author Affiliation

Top

Department of Physiology, Faculty of Medicine, Um-Alqura University, Saudi Arabia

### Submit your next manuscript and get advantages of SciTechnol submissions

- ❖ 80 Journals
- ❖ 21 Day rapid review process
- ❖ 3000 Editorial team
- ❖ 5 Million readers
- ❖ More than 5000 
- ❖ Publication immediately after acceptance
- ❖ Quality and quick review processing through Editorial Manager System

Submit your next manuscript at • [www.scitechnol.com/submission](http://www.scitechnol.com/submission)

\*Corresponding author: Adil Omar Bahathiq, Department of Physiology, Faculty of Medicine, Um-Alqura University, Saudi Arabia, Tel: +966 12 550 1000; E-mail: drbahathiq@hotmail.com

Received: February 04, 2018 Accepted: February 24, 2018 Published: March 02, 2018