THE ROLE OF SITAGLIPTIN IN REGULATING GUT MICROBIOTA IN PATIENTS WITH OBESITY AND DIABETES MELLITUS

Name: Giovanno Sebastian Yogie[1], Darren Gosal[2], Yohanes Firmansyah[1], Alexander Halim Santoso[1]
Affiliation: [1]Tarumanagara University, [2]Hasanuddin University
Country: Indonesia
Email ID: giovannousa@gmail.com

ABSTRACT (up to 300 words)

Introduction: Obesity is a condition when there is an imbalance between the amount of energy consumed and energy expended daily. Consequently, this leads to excess fat accumulation and body weight increment. If left untreated, obesity can cause various health problems, such as hypertension, heart disease, diabetes mellitus, liver disease, and even mental disorders. There are different therapeutic modalities for obesity and diabetes mellitus, including diet and exercise interventions, surgery, and medication. One such medication is sitagliptin, a DPP-4 inhibitor that prevents the breakdown of the incretin hormone. This improves blood sugar levels and has a known effect on reducing weight. Additionally, the role of intestinal microbiota in the mechanisms of obesity and diabetes mellitus is known. This study aims to discuss the role of sitagliptin in regulating gut microbiota in patients with obesity and diabetes mellitus. **Review**: Gut microbiota produces short-chain fatty acids (SCFAs) that can control blood sugar levels, inflammatory processes, and intestinal homeostasis. Sitagliptin has been shown to increase the ratio of Firmicutes to Bacteroidetes, which causes an increase in SCFA therefore the intestine absorbs more polysaccharides. The other benefits of SCFA include protecting the intestinal mucosa from pathogens, providing colonocyte nutrition, and reducing inflammation. The butyrate in SCFA can activate gluconeogenesis in the intestine, decrease liver glucose production, and reduce appetite and body weight to regulate blood glucose levels. The propionate content in SCFA stimulates the release of peptide YY and glucagon-like peptide 1 (GLP-1) to reduce energy intake by increasing satiety. Additionally, it can produce branched-chain amino acids (BCAAs), convert primary bile acids to secondary bile acids, regulate appetite through the gut-brain axis, and store body fat. **Conclusion**: Various sitagliptin mechanisms regulate intestinal microbiota, improving obesity and diabetes mellitus. However, more research is required to determine the effects of sitagliptin on gut microbiota, weight loss, and blood sugar levels in humans.

BIOGRAPHY

Giovanno Sebastian Yogie completed his Medical Doctor profession program at age 24 from Tarumanagara University in Indonesia. In addition to his daily clinical practice, he is actively involved in research and has published over 30 articles, including "The Role of SGLT 2 Inhibitor in Obesity Therapy". His interest in metabolic and endocrine diseases and diabetes has led him to participate twice in the International Diabetes Federation Congress in Lisbon, Portugal in 2022 and 2023.

Presenter Name: Giovanno Sebastian Yogie
Mode of Presentation: Poster.
Contact number: + 62 81908282829.