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Incretin based therapies in type 2 diabetes

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Type 2 diabetes is a complex metabolic disorder characterized by hyperglycemia arising from a combination of insufficient insulin secretion together with resistance to insulin action. The incretin effect describes the observation that oral glucose has a greater stimulatory effect on insulin secretion than the intravenous glucose at the same circulating glucose concentration. In humans, this effect seems to be primarily mediated by GLP1 and GIP. GLP1 is produced from the proglucagon gene in intestinal L cells and is secreted in response to nutrients. GLP1 stimulates insulin secretion in a glucose-dependent fashion, inhibits inappropriate hyperglucagonemia, slows gastric emptying, reduces appetite and improves satiety, and has beta-cell proliferative, antiapoptotic, and differentiation effects at least *in vitro* and in preclinical models. GLP1 has a very short half-life in plasma (1 to 2 minutes) due to amino terminal degradation by the enzyme dipeptidyl peptidase IV (DPP4). A variety of pharmacologic techniques have been developed to harness the potential of GLP1 signaling to treat diabetes, including GLP1 receptor agonists, which are peptides that produce increases of 10-fold or higher inGLP1 activity, and DPP4 inhibitors, which are small molecule inhibitors of the degradation of GLP1 and GIP as well as other hormones. Exenatide is synthetic exendin-4 and was the first GLP1-based therapeutic agent to be approved for human use. Liraglutide, Albiglutide, Taspoglutide & Lixisenitide are other GLP1 receptor agonists under various trials for efficacy and cardiovascular safety. Sitagliptin was the 1st DPP4 inhibitors available for therapy. Many new drugs Saxagliptin, Vildagliptin, Aloegliptin are under various stages of clinical trial for approval. They have advantage over GLP1 analogues as they are oral and better side effect profile. Availability of these new drugs has made treatment of type 2 diabetes easier. Long term effects of on cardiovascular safety of these drugs is being studies in long term RCTs. Role of incretin based therapy in type 1 diabetes is scope for further research.

Biography

M Mukhyaprana Prabhu is currently working as Professor of Internal Medicine & Head of unit in Kasturba Medical College Manipal, India. He is also working as academic coordinator for International student exchange with Maastricht University Netherlands & voluntary faculty Family medicine University of Kentucky USA. He did graduation from Mysore Medical College & obtained MD (Internal Medicine) from JJM Medical College, Davangere. He has done short term fellowship in Immunology from SGPGI, Lucknow. His special interest includes immune mediated diseases, Diabetes & Medical education. He has published extensively in international & national indexed journal with total publications being 78.He is also editorial board & peer reviewer in international journals. He has presented papers in national & international conferences. He is guest speaker in state & National API meetings. He is life member of IMA, API, & Critical care society of India. He is also member of American Academy of Clinical Endocrinology (AACE).

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