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Pharmaceutical Management Strategies of Diabetes Mellitus

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Diabetes is a chronic health condition and one of the most common diseases seen in humans. According to the World Health Organization, about 422 million people in the world have diabetes and 1.6 million deaths each year are directly associated with diabetes [1]. With these numbers increasing daily, the research on the cure and medicine is progressing at a rapid rate to decrease the casualties as much as possible. In recent years, understanding of insulin release and technological advances in drugs and therapeutics has led to improve glycemic control [2].

The new therapies include targeting the incretin axis, renal glucose handling, and new insulin for better results. The incretin hormones lead to glucose-dependent insulin release and reduced glucagon release, in vivo the incretin hormones are quickly broken down by the hormone dipeptidyl peptidase-4 (DDP4) [2,3]. The DDP4 inhibitors are recommended by NICE as an alternative second-line and third-line therapies and also have a low risk of hypoglycemia and do not lead to weight gain [2,4, and 5]. The targeting of renal glucose handling is done by SLGT2 inhibitors which provide a novel target for controlling blood sugar levels through kidneys [2]. These inhibitors lower blood glucose with a low risk of hypoglycemia but the side effects include an increase in fungal genital infections and urinary tract infections; an effect seen more commonly in women than in men [6]. The newer insulins are developed to provide a more stable and longer period of basal insulin profile and the action of insulin is delayed with an increase in its molecular size and slowing its absorption [2]. The insulin can be delivered through inhalation which leads to better compliance and control. This also has a better result than other delivery systems like mealtime insulin and basal insulin injections but it cannot replace the basal insulin injections because the main side effects include hypoglycemia and throat pain [2,7].

The DDP4 and SLGT2 inhibitors are the newest insulin analogs which provide a unique opportunity to target different underlying pathophysiological defects and is ready to play a larger role in the treatment paradigm of type 2 diabetes. The NICE guidelines are providing useful information in the management of diabetes and are updating regularly. It can be said that the new revised NICE guidelines can further guide the decision-making process and improve drug enhancements.

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