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Writing Sample (Edited)

An introduction paragraph setting the stage for an article on Type 2 Diabetes, discussing the burden of disease and what treatment options are available, and if there is any unmet medical need.

Type 2 Diabetes (TD2) occurs when a patient grows resistant to insulin and cannot maintain normal glycemic levels without intervention.[1] While diagnosed cases in the U.S. comprise 9.5% of the adult population (21.8 million people), estimates suggest that the total prevalence of diagnosed and undiagnosed TD2 is closer to 14.6% (33.0 million people). [2] Prevalence of diagnosed TD2 increases with age, is higher in men than in women, and is significantly higher in non-Hispanic American Indian/Native Alaskan groups than in other ethnic groups.[2] Most recent estimates indicate that the highest prevalence is in the 45-64 age range.[2] People with TD2 have twice to three-times the mortality rate of people without diabetes and their risk of developing cardiovascular disease is nearly doubled.[3] Life expectancy decreases by up to 8 years.[3] People with TD2 are also at risk of complications from renal disease, hepatic disorders, neuropathy and other neurological and psychiatric vulnerabilities.[1] The total economic cost in the U.S. in 2012, including direct medical costs and indirect costs from productivity loss, was estimated at $245 billion.[4]

Diabetes is a chronic condition that needs life-long management, including drug intervention. Synthetic insulin supplements can compensate for insulin resistance.[5] Meglitinides, Glinides, GLP-1 agonists and sulfonylureas induce pancreatic beta cells to secrete additional insulin while biguanides and thiazolidinediones reduce insulin resistance.[5] Besides acting on the insulin system, drugs can modulate blood sugar levels through other mechanisms of action.[5] The dopamine agonist bromocriptine diminishes cravings for sugary foods.[5] Alpha-glucosidase inhibitors block polysaccharide metabolism into simple sugars while SGLT2 inhibitors prevent reabsorption of glucose in the kidneys.[5] Bile Acid Sequestrants, used to lower cholesterol levels, concomitantly reduce blood sugar levels.[5]

However, drugs that manipulate insulin levels can induce hypoglycemia, which unchecked can lead to seizures or death.[5] Treatments that modulate the metabolism of carbohydrates and sugars cause gastrointestinal and renal adverse events, and produce weight fluctuations.[5] Other treatments raise the risk of cardiovascular events or cancer.[5] In addition, several classes of drugs are only available in injectable form and are difficult to self-administer.[5] The need for effective TD2 treatments with fewer side effects is acute.

References

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