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Short Communication

Enhancement of Blood Sugar Management for the Treatment of Type 2 Diabetes with Insulin Glargine

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DESCRIPTION

Insulin glargine is a long-acting basal insulin analogue that mimics the physiological secretion of insulin in the body. It is used to treat people with type 1 or type 2 diabetes mellitus that required insulin therapy to achieve glycemic control [1]. Insulin glargine has duration of action of up to 24 hours, which allows for once-daily administration and reduces the risk of nocturnal hypoglycemia. Older adults with diabetes face many challenges in managing their condition, such as age-related physiological changes, comorbidities, polypharmacy, cognitive impairment, functional decline, and social isolation [2]. These factors may affect their ability to self-monitor blood glucose, adhere to medication regimens, and recognize and treat hypoglycemia. Therefore, older adults with diabetes need individualized and comprehensive care that considers their medical, psychological, functional, and social needs. Insulin glargine may be a suitable option for older adults with diabetes who need insulin therapy, as it has been shown to provide effective and safe glycemic control across different age groups [3,4]. Insulin glargine has a lower risk of hypoglycemia than other basal insulins, such as NPH insulin, which is especially important for older adults who are more vulnerable to the adverse consequences of hypoglycemia, such as falls, fractures, cognitive decline, and cardiovascular events. Insulin glargine also has a flexible dosing schedule, which may improve adherence and quality of life for older adults who have complex medication regimens or variable daily routines [5-7].

Several clinical studies have evaluated the efficacy and safety of insulin glargine in older adults with type 2 diabetes. One of them is the REALI pooled analysis, which included data from 14 interventional and non-interventional studies, involving 8106 patients with uncontrolled type 2 diabetes who were initiated on or switched to Insulin Glargine 300 U/mL (Gla-300), a second-generation basal insulin analogue with a more stable and prolonged pharmacokinetic and pharmacodynamic profile than the first-generation insulin glargine 100 U/mL (Gla-100). The REALI analysis categorized the patients into five age subgroups: < 50, 50-59, 60-69, 70-79, and ≥ 80 years. The results of the REALI analysis showed that Gla-300 provided similar and significant reductions in hemoglobin A1c (HbA1c) across all age subgroups, with a mean change from baseline to week 24 ranging from -1.09% to -1.18% [8]. The proportion of patients who achieved the HbA1c target of <7% also increased from baseline to week 24 in all age subgroups, with the highest increase observed in the subgroup aged ≥ 80 years (from 16.1% to 40.6%). The incidence and event rate of reported hypoglycemia were overall low and comparable across age subgroups, except for the subgroup aged ≥ 80 years, which had a lower incidence of symptomatic hypoglycemia occurring at any time of the day (5.9% *vs.* 7.6%-9.4% for the younger subgroups) or during the night (0.5% *vs.* 1.6%-2.5%), but a higher incidence of severe hypoglycemia occurring any time of the day (1.1% *vs.* 0.1%-0.6% for the younger subgroups). The REALI analysis concluded that Gla-300 initiated in patients with uncontrolled type 2 diabetes provided glycemic improvement with a favorable safety profile across a wide range of ages, including older adults. However, the authors also acknowledged some limitations of the analysis, such as the heterogeneity of the included studies, the lack of a control group, and the potential underreporting of hypoglycemia [9,10]. Therefore, more randomized controlled trials are needed to confirm the benefits and risks of Gla-300 in older adults with type 2 diabetes, especially in those with high risk of hypoglycemia or frailty.

CONCLUSION

Despite the valuable insights provided by the REALI analysis, it is essential to acknowledge the study's limitations, including the heterogeneity of included studies, the absence of a control group, and potential underreporting of hypoglycemic events. To establish a more comprehensive understanding of the benefits and risks of Gla-300 in older adults with type 2 diabetes, further randomized controlled trials are warranted. These trials should specifically address the unique needs and susceptibilities of older individuals, providing robust evidence to guide clinicians in optimizing diabetes management for this demographic.

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REFERENCES

1. Gheith O, Farouk N, Nampoory N, Halim MA, Al-Otaibi T. Diabetic kidney disease: worldwide difference of prevalence and risk factors. J Nephropharmacol. 2016; 5(1):49.
2. Needleman I, McGrath C, Floyd P, Biddle A. Impact of oral health on the life quality of periodontal patients. J Clin Periodontol. 2004; 31(6): 454–457.
3. Stratton IM, Adler AI, Neil HA, Matthews DR, Manley SE, Cull CA, et al. Association of glycaemia with macrovascular and microvascular complications of type 2 diabetes (UKPDS 35): prospective observational study. BMJ. 2000; 321(8): 405–412.
4. Eizirik DL, Pipeleers DG, Ling Z, Welsh N, Hellerstrom C, Andersson A. Major species differences between humans and rodents in the susceptibility to pancreatic beta-cell injury. Proc Natl Acad Sci. 1994;91(20):9253-9256.
5. Fonseca SG, Gromada J, Urano F. Endoplasmic reticulum stress and pancreatic β-cell death. Trends Endocrinol Metab. 2011;22(7): 266-274.
6. Erdogan A, Rao SS, Gulley D, Jacobs C, Lee YY, Badger C. Small intestinal bacterial overgrowth: duodenal aspiration vs glucose breathe test. Neurogastroenterol Motil. 2015;27(4):481-489.
7. Rezaie A, Buresi M, Lembo A, Lin H, McCallum R, Rao S, et al. Hydrogen and methane-based breath testing in gastrointestinal disorders: the North American Consensus. Am J Gastroenterol. 2017;112(5):775.
8. Yu D, Cheeseman F, Vanner S. Combined oro-caecal scintigraphy and lactulose hydrogen breath testing demonstrate that breath testing detects oro-caecal transit, not small intestinal bacterial overgrowth in patients with IBS. Gut. 2011;60(3):334-340.
9. Adamina M, Bonovas S, Raine T, Spinelli A, Warusavitarne J, Armuzzi A, et al. ECCO guidelines on therapeutics in Crohn's disease: surgical treatment. J Crohns Colitis. 2020;14(2):155-168.
10. Gunesh S, Thomas GA, Williams GT, Roberts A, Hawthorne AB. The incidence of Crohn's disease in Cardiff over the last 75 years: an update for 1996–2005. Aliment Pharmacol Ther. 2008;27(3): 211-219.