

EMBARGOED UNTIL JUNE 28 at 6:55 p.m. ET

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LIRAGLUTIDE AND INSULIN MORE EFFECTIVE IN MAINTAINING AVERAGE BLOOD GLUCOSE LEVELS THAN OTHER COMMON DIABETES DRUGS

Head-to-head comparison of glucose-lowering medications helps inform individualized treatment strategies

WASHINGTON, DC (JUNE 28, 2021) –Today, investigators sponsored by the National Institutes of Health announced findings from the largest and longest study comparing the effectiveness of common medications to treat type 2 diabetes. Results of the GRADE study were presented at the virtual 81st Scientific Sessions of the American Diabetes Association (ADA).

Controlling blood glucose levels over time is a major challenge for people with type 2 diabetes, a condition that disproportionately impacts Black and Hispanic people, who are [50% more likely](#) to have diabetes than non-Hispanic white people. The GRADE study, included a highly diverse population of 20% Black and 18% Latino patients. It was designed to compare the effectiveness of glucose-lowering medications in maintaining average blood glucose levels in the target range that has been identified to reduce the risk of long-term complications.

GRADE performed a head-to-head comparison of the four most commonly used classes of medications used in conjunction with metformin and looked at their ability to keep average blood glucose levels in the recommended target range, as indicated by an A1C level (a measurement of average blood glucose) of less than 7%. Medications in addition to metformin, which is recommended by the ADA for initial use to treat type 2 diabetes, are often needed to treat type 2 diabetes to help lower A1C levels. The comparison included two oral medications, the sulfonylurea glimepiride and the DPP-4 inhibitor sitagliptin, and two injectable medications, insulin glargine and the GLP-1 receptor agonist liraglutide. The effects of each of the four medications on diabetes complications and side effects were also examined.

The study enrolled more than 5,000 patients with type 2 diabetes with an average age of 57 years and an average duration of diabetes of four years. Approximately 1,250 were randomly assigned to each of the four medications. GRADE was conducted for an average of five years and maximum of more than seven years.

Results of GRADE demonstrated that liraglutide and insulin were the most effective of the four medications in keeping A1C levels less than 7%. Glimepiride had a smaller

effect and sitagliptin showed the lowest effect, resulting in the highest frequency of developing A1C levels greater than 7%. Insulin glargine was most effective in keeping A1C levels less than 7.5%, a secondary outcome of the study. The results were similar among men and women and across the different races and ethnicities and age groups.

Additional findings include:

- **Weight loss:** On average, participants treated with liraglutide and sitagliptin had more weight loss than those treated with glimepiride, while the participants assigned to insulin glargine had stable weight over time.
- **Side effects and risk:** Liraglutide had more gastrointestinal side effects, such as nausea, abdominal pain, and diarrhea, than the other three medications. Glimepiride was associated with a higher risk for low blood glucose than the other medications.
- **Complication benefits:** Based on preliminary results, liraglutide had a relative benefit compared with the three other medications for reduction of a composite outcome of heart attacks, stroke, and other heart and vascular complications.

“The ultimate goal of GRADE is to help clinicians select the therapies that will work best for individual patients, as diabetes care is not a one-size-fits all approach,” said **David M. Nathan, MD, Director, Diabetes Center, Massachusetts General Hospital, Professor of Medicine, Harvard Medical School, Boston, MA and lead study chair**. “We believe these results will provide value to both patients and their providers when deciding which medication is needed to meet their appropriate blood glucose target and we are encouraged that these findings can be applied to a very diverse range of patients.”

“Comparative effectiveness trials like GRADE are essential in helping people make decisions about how to best manage and treat chronic diseases like type 2 diabetes,” said **Dr. Henry Burch, NIDDK project scientist for the study**. “NIH supports GRADE and studies like it to help people with type 2 diabetes make informed choices between medications based on individual patient needs and the characteristics of the medications.”

The authors state that future analyses of the results from the highly diverse GRADE participants will help personalize the use of glucose-lowering medications in type 2 diabetes.

Research presentation details:

- Dr. Nathan and study investigators presented the findings of the trial during the symposium listed below.

- [Results of the Glycemia Reduction Approaches in Diabetes—A Comparative Effectiveness \(GRADE\) Study \(includes live video Q&A period\)](#)
- **Date:** Monday, June 28, 4:30–6:55 p.m. ET (all sessions will be recorded and accessible for 90 days)

For more information or to request an interview with Dr. Nathan, please contact the ADA Scientific Sessions media team at SciSessionsPress@diabetes.org.

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About the ADA’s Scientific Sessions

The ADA’s 81st Scientific Sessions, the world’s largest scientific meeting focused on diabetes research, prevention and care, will be held virtually June 25-29, 2021. Leading physicians, scientists and health care professionals from around the world will unveil cutting-edge research, treatment recommendations and advances toward a cure for diabetes. Though the conference will be remote this year, attendees will receive exclusive access to nearly 2,000 original research presentations and take part in provocative and engaging exchanges with leading diabetes experts. Learn more and register at scientificsessions.diabetes.org and join the Scientific Sessions conversation on social media using #ADA2021.

About the American Diabetes Association

Every day more than 4,000 people are newly diagnosed with diabetes in America. More than 122 million Americans have diabetes or prediabetes and are striving to manage their lives while living with the disease. The American Diabetes Association (ADA) is the nation’s leading voluntary health organization fighting to bend the curve on the diabetes epidemic and help people living with diabetes thrive. For 80 years the ADA has been driving discovery and research to treat, manage and prevent diabetes, while working relentlessly for a cure. We help people with diabetes thrive by fighting for their rights and developing programs, advocacy and education designed to improve their quality of life. Diabetes has brought us together. What we do next will make us Connected for Life. To learn more or to get involved, visit us at diabetes.org or call 1-800-DIABETES (1-800-342-2383). Join the fight with us on Facebook ([American Diabetes Association](https://www.facebook.com/AmericanDiabetesAssociation)), Twitter ([@AmDiabetesAssn](https://twitter.com/AmDiabetesAssn)) and Instagram ([@AmDiabetesAssn](https://www.instagram.com/AmDiabetesAssn)).