

Type 2 diabetes medication shown to benefit asthma patients

21 May 2021



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Type 2 diabetes patients who also have asthma are benefitting from a diabetes medication, typically given to help the pancreas produce more insulin, that also improves asthma symptoms and may reduce lung and airway inflammation.

These types of [medication](#)—GLP-1 receptor agonists—are a newer class of FDA-approved therapeutics that are generally used in addition to metformin for control of blood sugar or to induce weight loss in patients with obesity.

Researchers from Vanderbilt University Medical Center, Brigham and Women's Hospital, Harvard Medical School and University Hospital Zurich in Switzerland used electronic health record (EHR) data of patients with [asthma](#) and type 2 [diabetes](#) who initiated treatment with GLP-1R agonists, finding lower rates of asthma exacerbations and reduced [asthma symptoms](#) as compared to those who initiated other type 2 diabetes medications.

Their findings were published in the *American Journal of Respiratory and Critical Care Medicine*.

"We have demonstrated really for the first time that this class of medications used to treat type 2 diabetes and obesity may also have benefit for our patients who have asthma," said lead author Katherine Cahill, MD, medical director of Clinical Asthma Research in the Division of Allergy, Pulmonary, and Critical Care Medicine at VUMC.

"In a six-month period, type 2 [diabetes patients](#) who received this form of medication to improve blood sugar control also had better control of their asthma disease and symptoms compared to those who took alternative therapies," she said.

Cahill's study was a retrospective, [observational study](#), so definitive prospective studies such as a clinical trial in patients with asthma, with and without comorbid type 2 diabetes, are required to confirm these medications provide benefit for asthma.

"For patients who have type 2 diabetes and asthma it means that some of their medications for type 2 diabetes may actually help their asthma control," Cahill said.

"For patients who have asthma but may not have type 2 diabetes it means that there could be a new class of medications that could be used for treatment."

In [preclinical models](#) completed at VUMC, GLP-1R agonists have been shown to reduce allergic airway inflammation and viral-induced airway inflammation. To translate these findings into human disease, Cahill and colleagues took advantage of the widespread use of GLP-1R agonists for the treatment of type 2 diabetes and available clinical information in EHR data.

VUMC colleagues Shinji Toki, Ph.D., Melissa Bloodworth, MD, Ph.D., Stokes Peebles, MD, and Kevin Niswender, MD, Ph.D., had previously shown in preclinical models of asthma that this class of

medications reduces inflammation in the lung as well as how the lung responds to certain challenges like allergies and viruses. Other early preclinical data also suggest it is possible this therapy could have benefits in the airway for other airway diseases.

"In our study we found that patients with asthma received benefits from this medication because they had improved asthma control, so fewer asthma symptoms, and fewer acute flares, or what we call exacerbations, of their asthma," Cahill said.

"Our study demonstrated that the patients reported better breathing symptoms and fewer reports of shortness of breath and cough."

One member of the class of medications that induces early satiety, leading to weight loss, is already approved for the treatment of obesity. Future studies will investigate if the drug could improve outcomes for patients with both asthma and obesity.

Cahill and VUMC colleagues have received National Institutes of Health (NIH) funding to initiate a randomized, controlled clinical trial of GLP-1R agonists in asthma during the next year.

"Our next step is to take this medication and study it in patients with asthma. Here at Vanderbilt, we are going to actually be looking at patients who are obese and have asthma and assess whether the drug actually makes their asthma better or not," Cahill said.

More information: Dinah Foer et al, Asthma Exacerbations in Patients with Type 2 Diabetes and Asthma on Glucagon-like Peptide-1 Receptor Agonists, *American Journal of Respiratory and Critical Care Medicine* (2020). [DOI: 10.1164/rccm.202004-0993OC](https://doi.org/10.1164/rccm.202004-0993OC)

Provided by Vanderbilt University Medical Center
APA citation: Type 2 diabetes medication shown to benefit asthma patients (2021, May 21) retrieved 27 June 2022 from <https://medicalxpress.com/news/2021-05-diabetes-medication-shown-benefit-asthma.html>

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