Weight loss could reduce the risk of severe infections in people with diabetes, UK research suggests

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Weight loss interventions could reduce the risk of severe cases of flu and other infections in people with diabetes, suggests new research being

presented at the annual meeting of the European Association for the Study of Diabetes (EASD) in Madrid, Spain (9-13 September).

The study, by Rhian Hopkins and Ethan de Villiers, of the University of Exeter Medical School, University of Exeter, Exeter, UK, has found evidence to suggest that a higher BMI is a cause of severe infections.

In contrast, there was no evidence that mild hyperglycemia contributes to the likelihood of a severe infection.

Ms. Hopkins says, "Up to one in three hospitalizations in people with diabetes are for infections and people with diabetes are twice as likely to be hospitalized with infections than the general population. They are also at high risk of readmission. Previous studies have found that a higher BMI and poor blood sugar control are associated with severe infections. However, these studies have been observational and so haven't been able to prove that the links are causal.

"If one or both of these factors can be shown to be causal, it may be possible to design interventions to lower the risk of severe infections in those at high risk, such as people with diabetes."

The new study used data from the UK Biobank, which holds medical and genetic data on around 500,000 people in the UK, to explore the effect of higher BMI and poor blood sugar control on hospitalization for bacterial and viral infections.

The 486,924 participants were classified into three groups: those with a record of hospitalization for a bacterial infection, such as pneumonia or a urinary tract infection (n=64,005); or a viral infection, such as flu, (n=14,562); and an infection-free control group (n=408,357).

A higher BMI was found to be associated with hospitalization with

infections. The likelihood of being hospitalized with a bacterial infection increased by 30% per 5-point increase in BMI (for instance, an increase in BMI from 30 kg/m^2 to 35 kg/m^2).

Similarly, every five-point increase in BMI was associated with a 32% increase in the likelihood of a severe viral infection.

Mild hyperglycemia was also found to be associated with severe infections. The likelihood of being hospitalized with a bacterial infection increased by 32% per 10mmol/mol increase in HbA1c, a measure of blood sugar levels.

Similarly, every 10mmol/mol increase in HbA1c was associated with a 29% increase in the likelihood of a severe viral infection.

The team then used Mendelian randomization, a technique that uses genetic information to establish whether a factor actually causes ill health, to determine if the relationships were causal. This suggested that a higher BMI is one of the causes of severe bacterial and viral infections. However, mild hyperglycemia did not appear to be a cause of severe infections.

The study didn't focus on individuals with diabetes. However, given how vulnerable they are to infections, the results may be of particular relevance to them, says Ms. Hopkins.

She adds, "Infections are a major cause of death and ill health, particularly in people with diabetes. Anyone admitted to hospital with a severe infection is also at high risk of being admitted again with another. However, we currently have few effective ways to prevent this.

"This study demonstrates that higher BMI is a cause of hospital admission with infection. Clinicians could discuss weight loss options for

people with a high BMI at risk of severe infections and readmission to hospital for infection. While this message may be particularly relevant to people with diabetes, it applies more widely, too."

Further research is needed to determine if more severe hyperglycemia is a cause of severe infections.

Provided by Diabetologia

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