NIHR Alerts

Even short periods of diabetes remission are linked to lower risk of heart attack and stroke

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The study

Dambha-Miller H, Hounkpatin HO, Stuart B, Farmer A, Griffin S. Type 2 diabetes remission trajectories and variation in risk of diabetes complications: A population-based cohort study. *PLoS ONE* 2023;18. doi:10.1371/journal.pone.0290791.

To read the full NIHR Alert, go to: https://evidence.nihr.ac.uk/alert/even-short-periods-of-diabetes-remission-are-linked-to-lower-risk-of-heart-attack-and-stroke/

Why was the study needed?

More than 3.8 million people in the UK have type 2 diabetes. The condition places them at increased risk of cardiovascular events and complications of the large and small blood vessels.

Lifestyle changes including weight loss and exercise can reduce blood sugar levels and lead to remission from diabetes (defined as HbA1c less than 6.5%/48 mmol/mol without medication). However, over time, some people regain weight and relapse into type 2 diabetes.

Researchers assessed whether diabetes remission, even for a short period, reduces people’s long term risk of cardiovascular disease.

What did the study do?

The analysis was based on the medical records of 60 287 people with type 2 diabetes from 150 GP practices in southern England. Participants’ average age was 65 and more than half (57%) were male. Over an average of seven years, 19% achieved remission for at least six months (HbA1c less than 6.5% / 48 mmol/mol) without the help of medication or weight loss surgery.

The researchers grouped people according to the broad pattern of their blood sugar control. They considered groups that:

• Achieved remission and did not relapse (15%)

• Achieved remission and then relapsed (14%)

• Decreased their blood sugar levels but did not achieve remission (11%)

• Had consistently high blood sugar levels and did not achieve remission (61%).

What did it find?

Over the study period, 7% of people had a cardiovascular event, 8% had a large blood vessel complication, 26% had a small blood vessel complication, and 12% died. The researchers explored whether these events were more likely in some groups than others. They adjusted results for sex, age, ethnicity, and other factors.

Compared with people who had consistently high blood sugar levels, people who achieved remission, even if they later relapsed, were:

• Less likely to have a cardiovascular event (76% less likely without relapse; 71% with relapse)

• Less likely to have a large blood vessel complication (85% less likely without relapse; 70% with relapse)

• Less likely to have a small blood vessel complication (63% less likely without relapse; 56% with relapse).

People who decreased their blood sugar levels but did not achieve remission were less likely to have small blood vessel complications than those who had consistently high blood sugar levels, but similarly likely to have a cardiovascular event.

In a pooled analysis, people who achieved remission at any point had a lower risk of death compared with people who did not achieve remission and had consistently high blood sugar levels.

However, a separate individual analysis found that people who achieved remission and did not relapse were more likely to die than people who had consistently high blood sugar levels. The researchers say that many in this group (who achieved remission and did not relapse) had large reductions in their weight, which could have been due to other conditions such as cancer.

Why is this important?

The study shows that remission is linked with a lower risk of cardiovascular complications. This should reassure people with type 2 diabetes and clinicians that achieving remission is possible and has long term health benefits.

Data on blood sugar levels were missing for almost half the participants. The researchers caution that they showed a link between remission and a reduced risk of cardiovascular disease; other factors such as weight and age also influence risk.

What’s next?

The authors will use these findings to develop tailored interventions to support people to achieve remission.

Competing interests: *The BMJ* has judged that there are no disqualifying financial ties to commercial companies. The authors declare the following other interests: none.

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