Early blood glucose control for those with type 2 diabetes crucial for reducing complications, prolonging life

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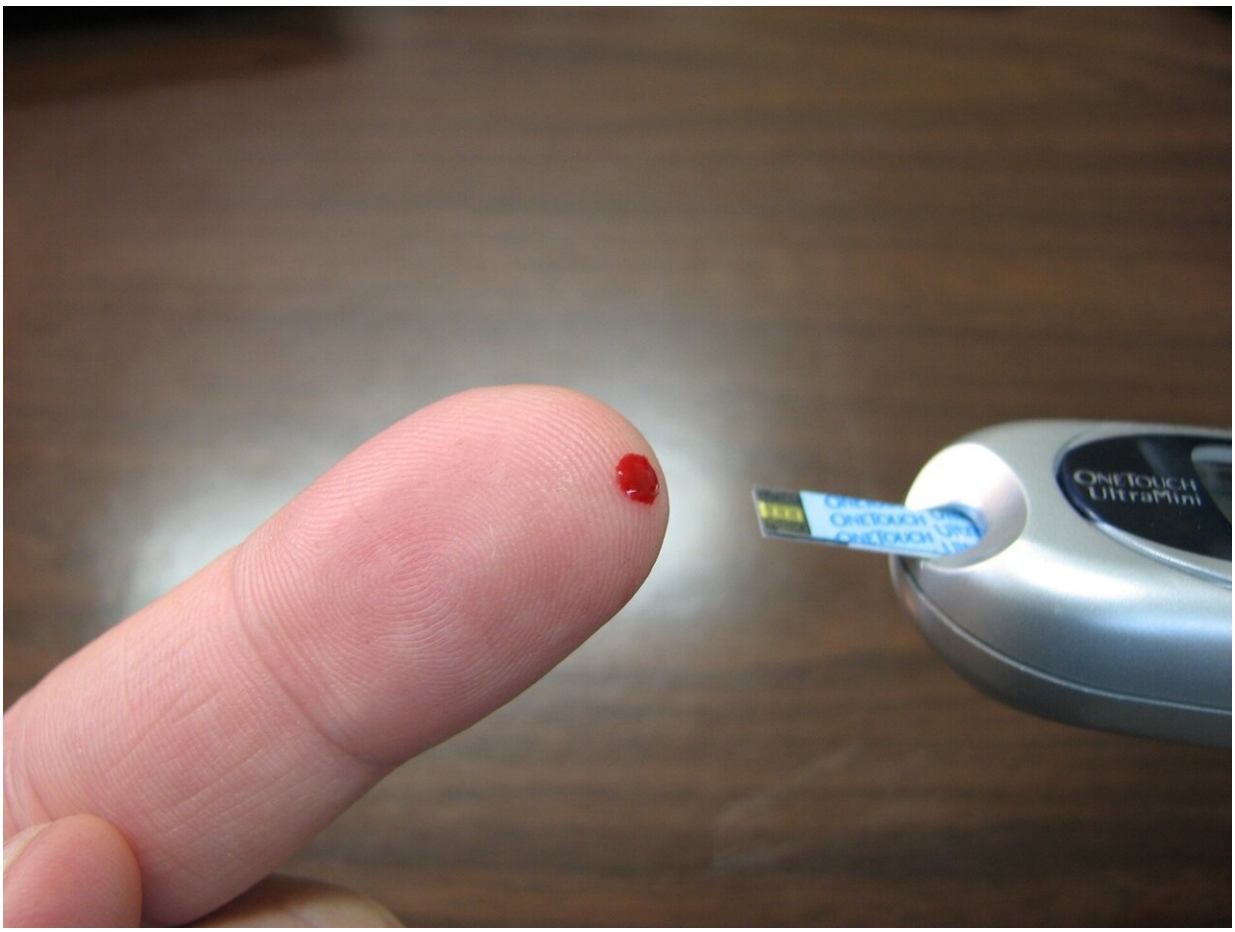

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Research led by scientists from the Universities of Oxford and Edinburgh has found that early good blood glucose control can minimize the lifetime risk of diabetes-related complications, including heart attacks, kidney failure and vision loss.

These latest results from the UK Prospective Diabetes Study (UKPDS), one of the longest ever clinical trials in type 2 diabetes, were made feasible by incorporating NHS data.

Professor Rury Holman of Oxford's Radcliffe Department of Medicine, the founding Director of the University of Oxford Diabetes Trials Unit and Chief Investigator of the UKPDS, said, "These remarkable findings emphasize the critical importance of detecting and treating type 2 diabetes intensively at the earliest possible opportunity.

"People may have type 2 diabetes for several years before being diagnosed as they may have few symptoms until their blood sugars become substantially elevated."

20-year trial led to worldwide guideline changes in blood glucose control

Starting in 1977, the UKPDS randomly allocated people with newly diagnosed type 2 diabetes to an intensive blood glucose control strategy with sulfonylureas, insulin, or metformin, or to a conventional blood glucose control strategy, primarily with diet.

The 20-year trial results, published in 1998, showed that good blood glucose control reduced the risk of diabetic complications. Worldwide, UKPDS changed guidelines to recommend intensive blood glucose control for everyone with type 2 diabetes.

"This meant that the therapies and blood glucose levels in the two UKPDS groups rapidly became similar," explains Professor Holman.

"Despite this, the 10-year post-trial monitoring study, published in 2008, showed those who had been allocated to early intensive blood glucose control continued to experience fewer diabetic complications compared with those allocated to conventional blood glucose control."

Continuing benefits described as a 'legacy' effect

The new results show that the legacy effects of implementing intensive blood glucose control straight after diagnosis of diabetes continue to persist for up to 24 years after the trial ended.

Early intensive blood glucose control with insulin injections or sulfonylurea tablets led to 10% fewer deaths, 17% fewer heart attacks and 26% fewer diabetic complications such as kidney failure and vision loss. Early intensive blood glucose control with metformin led to 31% fewer heart attacks and 20% fewer deaths. The treatments used in the UKPDS remain in common use worldwide at low cost.

The paper, "Post-trial monitoring of a randomised controlled trial of intensive glycaemic control in type 2 diabetes extended from 10 years to 24 years (UKPDS 91)," was presented at the 67th Japan Diabetes Society meeting, held May 17–19 in Tokyo, Japan, and is published in *The Lancet*.

Professor Amanda Adler, Director of the Diabetes Trial Unit, said, "This shows that treating type 2 diabetes early and thoroughly is crucial. Playing catch-up with blood glucose control is not sufficient."

Professor Philip Clarke, Director of the University of Oxford Health Economics Research Center, said "A major life-time benefit is the

increased life-expectancy in those allocated to intensive blood glucose control. The reduced rate of many diabetes-related complications will have a positive impact on overall quality of life."

Dr. Will Whiteley, Professor in Neurology and Epidemiology at the University of Edinburgh Center for Clinical Brain Sciences, and Associate Director at BHF Data Science Center, HDRUK, added, "Following up UKPDS participants for up to 42 years was possible only with the rich linked NHS data sources across U.K. nations.

"This meant we could study the effects of treatments given in midlife on diseases of aging, such as dementia. This shows the value for clinical trials of accessing NHS data."

More information: Amanda I Adler et al, Post-trial monitoring of a randomised controlled trial of intensive glycaemic control in type 2 diabetes extended from 10 years to 24 years (UKPDS 91), *The Lancet* (2024). DOI: 10.1016/S0140-6736(24)00537-3

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