MedicalXpress

# Link between low blood glucose and cardiovascular events revealed

December 12 2014

A study involving scientists from the University of Leicester has established a link between hypoglycaemia and increased risk of cardiovascular events and mortality in patients with diabetes.

Professors Kamlesh Khunti and Melanie Davies, scientists from the University of Leicester's Diabetes Research Centre, have confirmed an association between hypoglycaemia and an increased risk of cardiovascular events and mortality in insulin-treated patients with diabetes, which could lead to changes in the way some patients' treatment is managed. The results were published online in the journal *Diabetes Care* on December 9.

As part of an international collaboration with scientists from Imperial College London, the QIMR Berghofer Medical Research Institute and Novo Nordisk A/S – using data from the UK Clinical Practice Research Datalink database – Professors Khunti and Davies demonstrated that, following hypoglycaemia, insulin-treated patients with diabetes had an ~60% higher risk of cardiovascular events, and were between 2–2.5 times more likely to die over the same period as patients who did not experience hypoglycaemia.

The research was supported by the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care East Midlands (NIHR CLAHRC EM), and the NIHR Leicester–Loughborough Diet, Lifestyle and Physical Activity Biomedical Research Unit.

Kamlesh Khunti, Professor of Primary Care Diabetes & Vascular Medicine at the University of Leicester, who led the research, said: "This is one of the first studies to report the risk of cardiovascular events and mortality in people with both type 1 and type 2 diabetes. The risks are very significant and we need to identify these patients early with a view to implementing strategies to reduce their risk of hypoglycaemia."

Patients with diabetes are at higher risk of cardiovascular disease due to the formation of atherosclerotic plaques in blood vessels; this is a major cause of early death in these patients. The results of the study show that hypoglycaemia, which occurs when a patient's blood glucose becomes dangerously low, can trigger potentially fatal cardiovascular events.

Melanie Davies, Professor of Diabetes Medicine at the University of Leicester and Honorary Consultant at Leicester's Hospitals, commented: "The data from this important and large piece of research confirms what we already know in people with type 2 diabetes and extends our knowledge in those with type 1 diabetes. It also confirms the significance of hypoglycaemia and the link with an increased risk of cardiovascular events, a risk that persists over a long time period. Going forward we need to focus on management strategies that help patients minimise their risk of having hypoglycaemic events."

The findings of this investigation are a stark reminder of the challenges facing patients with diabetes and could lead to changes in the management of insulin-treated patients, particularly those at high risk of cardiovascular events.

**More information:** Kamlesh Khunti, Melanie Davies, Azeem Majeed, Brian Larsen Thorsted, Michael Lyng Wolden and Sanjoy K. Paul, "Hypoglycemia and Risk of Cardiovascular Disease and All-Cause Mortality in Insulin-Treated People With Type 1 and Type 2 Diabetes: A Cohort Study," *Diabetes Care* December 9, 2014 DOI:

10.2337/dc14-0920