

# Intensive glucose control in diabetics reduces heart attacks

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(PhysOrg.com) -- A meta-analysis of five trials has shown that more intensive glucose control in diabetes leads to fewer heart attacks and heart disease events - but has no significant effect on stroke or mortality from all causes.

The findings are reported in a paper published in a diabetes special issue of The Lancet, written by Dr Kausik Ray, University of Cambridge, and Professor Naveed Sattar, University of Glasgow and colleagues.

To date, individual studies of intensive glucose control have failed to show consistent benefits on [cardiovascular events](#) and some have even suggested possible harm.

The authors say this could be because each trial was underpowered to show clinical benefit. This meta-analysis combined five large trials, with the authors hoping to provide definitive evidence of a significant benefit of more intensive glucose control compared with standard care.

The five studies looked at more than 33,000 patients and provided information on 1,497 heart attacks, 2,318 events of coronary heart disease, 1,127 strokes, and 2,892 deaths.

The mean haemoglobin A1c concentration\* (HbA1c) was assessed in the patients. More intensive glucose control was achieved in the studies using additional medications and/or higher doses as shown by the lower levels of HbA1c which were achieved. HbA1c is used to indicate the

average plasma glucose concentration of the preceding two to three months. In general, the reference range (that found in healthy persons who do not have diabetes), is about 4%—5.9%. Patients with diabetes usually have HbA1c levels above 6.5%.

Patients receiving intense glucose control had levels of HbA1C that were 0.9 per cent lower than in those receiving standard treatment (6.6 per cent compared to 7.5 per cent). This resulted in a 17 per cent reduction in non-fatal heart attacks, and a 15 per cent reduction in events of coronary heart disease (fatal and non-fatal heart attacks), but had no overall effect on stroke rates or all-cause morality.

Naveed Sattar, professor of metabolic medicine in the Department of Cardiovascular and Medical Sciences, University of Glasgow, said: “Our analyses show that more intensive lowering of sugar levels in patients with diabetes does lower heart disease risk overall, but that certain groups of patients (those with longer duration of disease, and with poorer sugar control) may require less strict sugar targets to offset potential harms.

“We also show that benefits to the heart of more intensive sugar control appear more modest than lowering of cholesterol or blood pressure levels in patients with diabetes, reinforcing the critical importance of cholesterol and blood pressure lowering medications in patients with diabetes.”

“We now need more research to ascertain the optimum methods to achieve sugar control to enable the development of specific recommendations for reduction of HbA1c concentration in a range of patient populations.”

An accompanying comment in The Lancet article, Dr Theodore Mazzone, University of Illinois at Chicago, USA, said: “It might be

necessary to start intensive glucose-control efforts sooner after onset of diabetes, and extended follow-up may be required.

“The benefit of glucose control on [coronary heart disease](#) in type 2 diabetes will certainly not be as great as that produced by [blood pressure](#) control or statin treatment.

“However, on the basis of current information, and the urgent need to address residual risk of coronary [heart disease](#) in a rapidly expanding population with type 2 diabetes, it is premature to conclude that [glucose control](#) has no part to play.”

Provided by University of Glasgow

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