

Stress Hyperglycaemia in Hospitalised Patients and Their 3-Year Risk of Diabetes: A Scottish Retrospective Cohort Study

David A. McAllister, Katherine A. Hughes, Nazir Lone, Nicholas L. Mills, Naveed Sattar, John McKnight, Sarah H. Wild
Centre for Population Health Sciences, Medical School Building, University of Edinburgh.

PLEASE SEE <http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1001708>
FOR MORE DETAILS/FIGURES etc

Aims

Hyperglycaemia during a hospital admission is common in people without known diabetes and is associated with adverse outcomes. However, the subsequent risk of type 2 diabetes is unknown. We linked a national register of patients with diabetes (SCI-DC), a national hospitalisation database and regional biochemistry results databases in order to describe the association between admission venous glucose and subsequent 3-year risk of type 2 diabetes.

Methods

Patients aged 40 years or older with an emergency admission to hospital between 2004 and 2008 were included. Prevalent diabetes and incident diabetes were identified via SCI-DC and patients with prevalent diabetes (diagnosed on or before 30 days after the date of discharge from hospital) were excluded.

The predicted 3-year risk of type 2 diabetes by admission glucose, age and sex was obtained from logistic regression models.

Results

In 86,634 (71.0%) patients aged 40 and older the 3-year risk of developing type 2 diabetes was 2.3% (1,952/86,512) overall, was <1% for a glucose \leq 5 mmol/l, and increased to approximately 15% at 15 mmol/l. The risks at 7 mmol/l and 11.1 mmol/l were 2.6% (95% CI 2.5–2.7) and 9.9% (95% CI 9.2–10.6), respectively, with one in four (21,828/86,512) and one in 40 (1,798/86,512) patients having glucose levels above each of these cut-points.

Conclusions

Information about glucose levels during a hospital admission can be used to estimate risk of subsequent diabetes and inform guidelines for follow-up of people with hyperglycaemia.