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

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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 ≤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.