

Elderly patients admitted with high glucose levels are more likely to die in hospital

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A two-country hospital study of 808 elderly patients found a strong association between high, undiagnosed blood glucose in non-diabetic patients and increased hospital death rates, according to the March issue of *IJCP*, the *International Journal of Clinical Practice*.

Researchers are now calling for routine blood glucose testing of [elderly patients](#) when they are admitted to hospital. The Spanish team looked at 447 consecutive patients admitted to a geriatric unit, while the Italian team studied 361 patients over 60 admitted to an internal medicine department.

They found that, when they excluded the 206 patients already diagnosed with diabetes, 25% of the remaining 602 patients had a fasting glucose level of 126 mg/dl or more, which is the threshold used to diagnose the disease, with just under a fifth of those exceeding 180 mg/dl.

[Mortality rates](#) in patients with a fasting glucose level of less than 126 mg/dl was just over 8% for both the total sample and the patients admitted without a diagnosis of diabetes. But when the researchers looked at the undiagnosed patients whose fasting glucose levels were 126 mg/dl to 180mg/dl, the death rate rose to 18% and, in patients whose levels exceeded 180mg/dl, the rate increased to 31%.

These levels were much higher than the 14% and 23% recorded for diabetic patients with fasting glucose levels exceeding 126 mg/dl and 180 mg/dl respectively.

"This is the first multi-centre prospective study to assess the relationship between fasting serum glucose levels and in-hospital mortality in a large cohort of elderly patients" says lead author Dr Pedro Iglesias from the Department of Endocrinology at Hospital Ramon y Cajal in Madrid, Spain.

"Our findings clearly show that fasting glucose is a significant risk factor for death during hospitalisation, especially in patients who have not been diagnosed with diabetes."

Other key findings of the study included:

- The average age of the total cohort was 84 years and 57% were female, but the Spanish geriatric cohort was older than the Italian internal medicine cohort (86 versus 80 years), with a higher percentage of women (62% versus 50%).
- There was a higher incidence of high blood pressure, lower systolic and diastolic blood pressure, higher serum glucose and creatinine and lower total cholesterol concentrations in the Spanish cohort.
- The five most common reasons for hospital admission in the total cohort were: congestive heart failure (19%), respiratory tract infection (12.5%), acute cerebrovascular disease (12%), exacerbation of chronic obstructive pulmonary disease (9%) and cancer (8%). However, there were significant variations between the two cohorts.
- 25% of the total cohort had a pre-existing diagnosis of diabetes, with 2% more patients in the Spanish cohort than the Italian cohort having the disease.

- Median fasting glucose rates for the total cohort were more than 20% higher in patients who died (127 mg/dl) than those who survived (105 mg/dl).
- Hospital stays averaged 10.5 days for the total cohort and the average time from admission to death was 11.3 days. The Italian internal medicine cohort had a lower death rate (8% versus 14%) and lower average hospital stay (nine days versus 12 days) than the Spanish geriatric group, but the intervals from admission to death were similar in both groups.

"Our study shows a high mortality rate and short hospital survival in non-diabetic elderly patients with a high baseline fasting glucose level of more than 180 mg/dl" concludes co-author Professor Fabio Monzani from the Department of Internal Medicine at the University of Pisa, Italy.

"It underlines the importance of testing elderly patients for fasting glucose levels on admission to hospital for acute illnesses and suggests that a blood glucose level of 180 mg/dl or less might be an appropriate target in people who have not been diagnosed with diabetes.

"These findings should help us to identify those patients at high risk during hospitalisation, so that they can be offered intensive therapy to reduce their risk of death and improve their prognosis."

More information: Fasting hyperglycaemia and in-hospital mortality in elderly population. Iglesias et al. *IJCP*. 65.3, pp308-313. (March 2011). [DOI: 10.1111/j.1742-1241.2010.02514.x](https://doi.org/10.1111/j.1742-1241.2010.02514.x)

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