

HbA1c for screening and diagnosis of Diabetes Mellitus – applications and future perspectives

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Diabetes mellitus affects almost one in 10 individuals in Germany. So far, little is known about the diabetes prevalence in maximum care hospitals. We assessed the diabetes prevalence, proportion of undiagnosed cases, the effectiveness of diabetes screening in a university hospital, the consequences for hospital stay and acquired complications.

Over a 4 week period we determined HbA1c from 3.733 adult patients which were hospitalized at the university hospital of Tuebingen and had an available blood sample. Diabetes diagnosis was defined as HbA1c \geq 6.5% and/or previously documented diabetes diagnosis, prediabetes was defined as HbA1c \geq 5.7% and <6.5% without history of previous diabetes.

The study revealed that 23.68% of the patients had prediabetes and 22.15% had diabetes with a high variation between the specialized departments (range 5%-43%). The rate of unknown diabetes was 3.7%, the number needed to screen was 17 in patients older than 50 years. Patients with diabetes had a prolonged hospital stay compared to the mean length of stay for their diagnosis related group (diabetes: 1.47 \pm 0.24 days; no diabetes: 0.18 \pm 0.13 days, p=0.0133). The prevalence of hospital acquired complications was higher in diabetic patients (diabetes: 197 of 630; no diabetes: 447 of 2.459, p<0.0001).

In conclusion, every fourth patient in the university hospital had diabetes and every second had either prediabetes or diabetes. It is also worthwhile to screen for unknown diabetes in patients over the age of 50. The high prevalence and negative consequences of diabetes require screening and intensified specialized diabetes treatment in hospitals. Extension of the screening program to comorbidities and complications (e.g. nephropathy) and modification of the screening parameters may further increase the clinical value of this multidisciplinary effort.

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