

Publication

Assessment of diabetes and prediabetes prevalence and predictors by HbA1c in a population from sub-Saharan Africa with a high proportion of anemia: a prospective cross-sectional study

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Epidemiological data about diabetes mellitus (DM) for sub-Saharan Africa (SSA) are scarce and the utility of glycated hemoglobin (HbA1c) to diagnose DM is uncertain in African populations with a high proportion of anemia.; In a cross-sectional study, age-adjusted prevalence rates and predictors for DM and pre-DM were prospectively assessed by HbA1c in a semirural walk-in population of Tanzania (n=992). Predictors for DM were calculated by logistic regression. Correlations between HbA1c, hemoglobin, and blood glucose levels were done by Pearson's correlation.; Overall, DM and pre-DM prevalence rates were 6.8% (95% CI 5.3 to 8.5) and 25% (95% CI 22.8 to 28.3), respectively. There was an increase in DM prevalence in patients 50-59 (14.9%; 95% CI 9.1 to 22.5), ≥ 60 years old (18.5%; 95% CI 12.2 to 26.2) and in patients with overweight (9.3%; 95% CI 5.9 to 13.7), obesity (10.9%; 95% CI 6.9 to 16) compared with patients 18-29 years old (2.2%; 95% CI 0.9 to 4.4) ($p < 0.001$) and to normal-weight patients (3.6%; 95% CI 2.1 to 5.6) ($p < 0.01$), respectively. Age (OR 1.08, 95% CI 1.05 to 1.12; $p < 0.001$), body mass index (BMI) (OR 1.10, 95% CI 1.04 to 1.16; $p < 0.001$), and acute infection (OR 3.46, 95% CI 1.02 to 10.8; $p = 0.038$) were predictors for DM. Comparing patients with a BMI of 20 kg/m²; and a BMI of 35 kg/m²; , the relative risk for DM increases in average by 2.12-fold (range 1.91-2.24) across the age groups. Comparing patients 20 years old with patients 70 years old, the relative risk for DM increases in average 9.7-fold (range 8.9-10.4) across the BMI groups. Overall, 333 patients (36%) suffered from anemia. Pearson's correlation coefficients (r) between HbA1c and hemoglobin was -0.009 ($p = 0.779$), and between HbA1c and fasting blood glucose and random blood glucose, it was 0.775 and 0.622, respectively ($p < 0.001$).; We observed a high prevalence of DM and pre-DM, mainly triggered by increasing age and BMI, and provide evidence that HbA1c is suitable to assess DM also in populations of SSA with high proportions of anemia.; NCT03458338.

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