No association between hemoglobin A1c and in-hospital mortality in patients with diabetes and acute myocardial infarction.

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Abstract
BACKGROUND: Patients with diabetes have increased in-hospital mortality following acute myocardial infarction (AMI), with studies suggesting higher risk with both hypoglycemia and hyperglycemia. We assessed whether a J-shaped relation exists between hemoglobin A1c (A1C) in patients with diabetes and AMI.

METHODS: We assessed the associations between A1C and in-hospital mortality using data from a nationwide sample of AMI patients who had both prior diabetes and measurement of A1C (N = 15,337).

RESULTS: When evaluated continuously, we observed no evidence of a J-shaped relation between A1C and in-hospital mortality in multivariable analysis (test for linearity P = .89). Patients with lowest (<5.5%) and highest A1C (≥9.5%) had a crude mortality rate of 4.6% and 2.8%, respectively, compared with 3.8% among those in the referent A1C category (6.5% to <7%). In multivariable regression, we observed no association between low A1C (<5.5%, odds ratio 0.81, 95% CI 0.47-1.39) or high A1C (A1C ≥9.5, odds ratio 1.31, 95% CI 0.94-1.83) and mortality as compared with the referent group. These findings can only be generalized to the subset of patients with diabetes who had A1C assessed during their hospitalization; these patients tended to be healthier than those in whom A1C was not assessed.
CONCLUSION: In this large contemporary cohort of patients with diabetes presenting with AMI, we did not observe a J-shaped association between A1C and mortality.

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