

HBA1C IS ASSOCIATED WITH ACUTE KIDNEY INJURY IN PATIENTS UNDERGOING CABG SURGERY - A COHORT STUDY

Mehmet Oezkur

Department of Cardiovascular surgery, University Hospital Würzburg

Khaled Hamouda

Department of Cardiovascular surgery, University Hospital Würzburg

Martin Wagner

Institute of Clinical Epidemiology and Biometry, University of Würzburg; Comprehensive Heart
Failure Center, University of Würzburg

Coralie Essich

Department of Cardiovascular surgery, University Hospital Würzburg

Carolin Weiss

Department of Cardiovascular surgery, University Hospital Würzburg

Christoph Schimmer

Department of Cardiovascular surgery, University Hospital Würzburg

Peter Heuschmann

Institute of Clinical Epidemiology and Biometry, University of Würzburg; Comprehensive Heart
Failure Center, University of Würzburg

Clinical Trial Center Würzburg, University Hospital Würzburg

Rainer Leyha

Department of Cardiovascular surgery, University Hospital Würzburg

ABSTRACT

Introduction:

Acute kidney injury (AKI) is a frequent postoperative complication after coronary artery bypass grafting (CABG) surgery affecting patient mortality and morbidity. Diabetes is one of the major risk factors for AKI, with HbA1c as an indicator of long-term diabetic control. We aimed to investigate the association between HbA1c levels and postoperative incidence of AKI independent from diabetes mellitus in a cohort of CABG patients.

Materials and methods:

This cohort study consecutively enrolled patients undergoing CABG surgery in 2009 at the department for cardiovascular surgery. Patients with chronic kidney disease stage 3 (eGFR <30 ml/min) were excluded. The incidence of postoperative AKI (according to AKIN definition) and its association with HbA1c was analyzed by logistic regression modelling, further considering potential confounders, such as age and diabetes.

Results:

A total of n=307 patients were analyzed. Median age was 69yrs, 70% were male. The incidence of AKI was 48.2%. Patients with AKI were older (median 71 vs. 64 yrs, p<0.01), had higher HbA1c values (median HbA1c 6.1% vs 5.9%, p=0.041) and were more likely to be diabetic (60%). There were no significant differences in systemic or pulmonary hypertension, smoking, BMI and LV-EF nor in fasting serum glucose (FSG) and baseline creatinine (all p>0.05). After adjustment for age, the relationship of higher HbA1c with an increased risk of AKI disappeared in diabetic patients (OR 1.08 [0.77-1.51]). Meanwhile, in non-diabetic patients, the association of HbA1c and AKI remained stable (OR 1.7 [0.8 – 3.7]), however, it did not reach formal significance due to limited statistical power.

Discussion:

Older age and the presence of diabetes are strong risk factors for AKI after CABG surgery. However, our results suggest that HbA1c levels are related to AKI risk even in non-diabetic patients.