

Preoperative glycated hemoglobin and coronary surgery: need for different cut-offs for a continuous variable

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The prevalence of diabetes mellitus is increasing. Consequently, there is an increased need for diagnostic, prognostic and therapeutic investigation (1). For years, glycated hemoglobin (HbA1c) is an important preoperative marker in diabetics. It aims now to a predictive role.

An example is the nice manuscript by Narayan and colleagues (2), who have used preoperative HbA1c to evaluate outcomes of 4,678 patients after coronary surgery. These authors have shown that 6.5% HbA1c could be the threshold to evidence an increased risk of postoperative respiratory failure and wound infection. The result could give practical therapeutic implications. Some comments are needed.

The use of the recent measurement system of HbA1c in mmol/mol is more modular than the old (albeit immediate) system in percent of total hemoglobin and should be preferred, primarily for scientific purposes (3). Compared to a rigid dichotomous approach, “greater than vs. less than 6.5%”, different cut-offs should be used for diabetics (on insulin or oral hypoglycemic agents), non-diabetics, and patients with impaired glucose tolerance. Different cut-offs should be used also according to different postoperative complications (wound/respiratory infections). Actually, different degrees of poor glycemic control seem to have different impacts on the patients according to their insulin-requiring status, oral hypoglycemic therapy, diet, and glucose tolerance, as well as different postoperative complications could be favored by different degrees of glycemic disorder (4).

Despite long-term benefits, bilateral internal thoracic artery (ITA) use remains largely underutilized worldwide,

primarily because of increased risk of sternal complications. Dr. Narayan and colleagues have used both ITAs in 0.7% of their relatively young patients (mean age, 58.8 years). As future perspective, HbA1c could be adopted, in addition to other risk factors for sternal wound infection to aid rational use of bilateral ITA grafting, which is a compromise between the immediate risks and long-term benefits (4,5).

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Footnote

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References

1. Chamberlain JJ, Rhinehart AS, Shaefer CF Jr, et al. Diagnosis and Management of Diabetes: Synopsis of the 2016 American Diabetes Association Standards of Medical Care in Diabetes. *Ann Intern Med* 2016;164:542-52.
2. Narayan P, Kshirsagar SN, Mandal CK, et al. Preoperative Glycosylated Hemoglobin: A Risk Factor for Patients Undergoing Coronary Artery Bypass. *Ann Thorac Surg* 2017;104:606-12.
3. Syed IA. Glycated haemoglobin; past, present, and future are we ready for the change. *J Pak Med Assoc* 2011;61:383-8.
4. Gatti G, Perrotti A, Reichart D, et al. Glycated

Hemoglobin and Risk of Sternal Wound Infection After Isolated Coronary Surgery. *Circ J* 2016;81:36-43.

5. Gatti G, Barbati G, Luzzati R, et al. Prospective validation

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of a predictive scoring system for deep sternal wound infection after routine bilateral internal thoracic artery grafting. *Interact Cardiovasc Thorac Surg* 2016;22:606-11.