

Mortality and complications after coronary artery bypass grafting depending on preoperative comorbidity

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ABSTRACT

In-hospital mortality after emergency coronary artery bypass grafting (CABG) remains an important issue that has needed considerable attention in recent years as the mortality rate is still high and prevention factors are not yet optimal. Our study presents the first largest cohort of emergency CABG from one large institution in Vietnam with the primary aim of comparing a large variety of pre-, intra- and postoperative parameters between in-hospital mortality patients and in-hospital survival patients and investigate risk factors of in-hospital mortality in patients undergoing emergency CABG. We conducted a retrospective evaluation of prospectively collected data in patients undergoing emergency CABG at the Hanoi Heart Hospital (Hanoi, Vietnam) from January 1, 2017, to December 31, 2019. Primary outcome variable was in-hospital mortality. A total of 71 patients were included in final analysis. The mean age of the cohort was 68.68 years (± 9.28 , range 38–86). The mean weight, height and body mass index were 54.35 kg (± 9.17 , range 37–77), 158.96 (± 7.64 , range 145–179) and 21.48 kg/m² (± 3.08 , range 13.59–30.08), respectively. In-hospital mortality rate was 9.86%. Preoperative risk factors for in-hospital mortality included diabetes, decreased ejection fraction (EF), EF below 30%, cardiogenic shock, elevated systolic pulmonary artery pressure (PAP), elevated NT-ProBNP, and Euroscore II. Without grafting with left internal thoracic artery, and prolonged cardiopulmonary bypass (CPB) time were increased intraoperative factors for inhospital mortality risk. In-hospital mortality's postoperative risk factors were found to be postextubation respiratory failure requiring mechanical ventilation, ventricular fibrillation, dialysis-requiring acute renal failure, pneumonia, bacterial sepsis, gastrointestinal bleeding, and prolonged mechanical ventilation time. Significant predictors determining in-hospital mortality were known as prolonged CPB time in surgery and postoperative ventricular fibrillation. Our hospital mortality rate after emergency CABG was relatively high. An optimal preventive strategy in emergency CABG management should target significant factors combined with other previously identified risk factors to reduce in-hospital mortality.



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1. Introduction

Acute coronary syndrome (ACS), known as the most serious consequence of coronary artery disease, can result in long-term disability and mortality. Treatment for ACS patients is, to date, posed to be coronary revascularization. Though the outcomes of emergency coronary artery bypass grafting (CABG) were improved in previous reports, the early mortality still remains highly great (21–52%), [1– 4]. especially within first 48 hours from onset [5]. There are no formal research investigation and analysis on the number of performed CABG procedures in Vietnam, this figure still, to the best of our knowledge, increase annually in Vietnam in the past decade. A small proportion of these procedures are performed in emergency situations, most often because of ongoing ischemia, angiographic accidents, multivessel disease but anatomic unsuitability for percutaneous coronary intervention (PCI) and mechanical complications of acute myocardial infarction. Several previous authors from developed countries have reported the risk factors for in-hospital mortality after emergency CABG, but there are still the inconsistencies and inadequacy in input data between the surgical centers [6– 8]. Importantly, in-hospital mortality after emergency CABG remains an important issue that needs considerable attention in recent years as mortality rate is still high and prevention factors are not yet optimal. A comprehensive understanding of the country-specific risk and prognosis of in-hospital mortality after CABG is crucial to reduce overall emergency-related in-hospital mortality in Vietnam. This study sought to compare a large variety of pre-, intra- and post-operative parameters between in-hospital mortality patients and inhospital survival patients and investigate risk factors of inhospital mortality in patients undergoing emergency CABG.

2. Methods

Retrospective evaluation of prospectively collected data at the Hanoi Heart Hospital (Hanoi, Vietnam), was conducted. The clinical profile, preoperative characteristics, and medications, intraoperative data, and postoperative outcomes were retrieved from prospective patients' medical records and computerized database. From January 1, 2017, to December 31, 2019, a total of 71 patients underwent an emergency CABG in Hanoi Heart Hospital and were included in this study.

3. Conclusions

The in-hospital mortality rate was 9.86%. Preoperative risk factors for in-hospital mortality included diabetes, decreased EF, EF below 30%, cardiogenic shock, elevated systolic PAP, elevated NT-ProBNP, and Euroscore II. Without using internal thoracic artery, and prolonged CPB time were increased intraoperative factors for in-hospital mortality risk. In hospital mortality' postoperative risk factors were found to be postextubation respiratory failure requiring mechanical ventilation, ventricular fibrillation, dialysis-requiring acute renal failure, pneumonia, bacterial sepsis, gastrointestinal bleeding, and prolonged mechanical ventilation time. Significant predictors determining in-hospital mortality were known as prolonged CPB time in surgery and postoperative ventricular fibrillation.

4. References

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