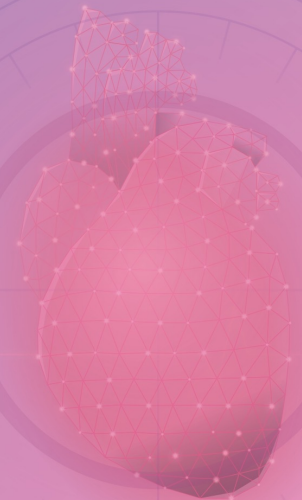




TIMING OF IN-HOSPITAL RESULTS FOR CORONARY ARTERY BYPASS IN PATIENTS WITH NON ST SEGMENT ELEVATION MYOCARDIAL INFARCTION

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INTRODUCTION

- STEMI + NSTEMI
- PCI the first choice
- NSTEMI:
 - >50%
 - high-risk
 - 5-10% CABG
- Delay 3 day or more in nonurgent

Optimal timing of coronary artery bypass after acute myocardial infarction: A review of California discharge data

Eric S. Weiss, MD,^a David D. Chang, MBA, MPH, PhD,^b David L. Joyce, MD,^a Lois U. Nwakanma, MD,^a and David D. Yuh, MD^a

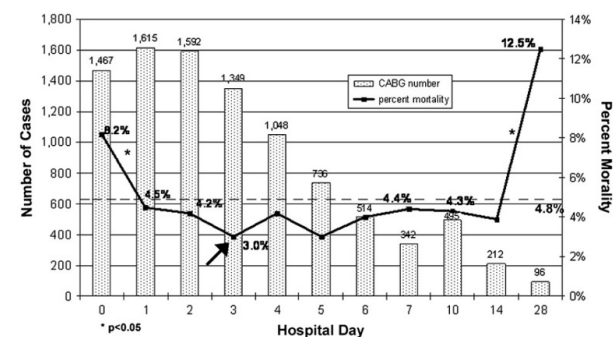


Figure 1. CABG volume and mortality over time. Distribution of CABG volume (left Y-axis, number of cases per day) and percent mortality (right Y-axis) per day of hospitalization. Dashed horizontal line represents total mortality over the study period (4.8%). Black arrow points to nadir of mortality occurring on day 3. CABG, Coronary artery bypass graft.

The Journal of Thoracic and Cardiovascular Surgery • Volume 135, Number 3 • 505

Conclusion: Patients undergoing coronary artery bypass grafting within 2 days of hospitalization for acute myocardial infarction experienced higher mortality rates than those undergoing coronary artery bypass grafting 3 or more days after acute myocardial infarction, independently of clinical acuity. This suggests that coronary artery bypass grafting may best be deferred for 3 or more days after admission for acute myocardial infarction in nonurgent cases.

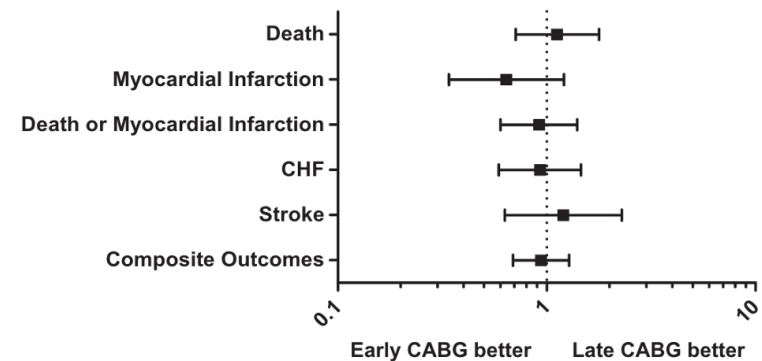


INTRODUCTION

- NSTEMI: CABG \leq 48h
- Delay CABG
 - \uparrow resource
 - Similar outcome

Timing of In-Hospital Coronary Artery Bypass Graft Surgery for Non-ST-Segment Elevation Myocardial Infarction Patients

Results From the National Cardiovascular Data Registry ACTION Registry–GWTG (Acute Coronary Treatment and Intervention Outcomes Network Registry–Get With The Guidelines)



Conclusions Most NSTEMI patients undergo late CABG after hospital arrival. Although these patients have higher-risk clinical characteristics, they have the same risk of adverse clinical outcomes compared with patients who undergo early CABG. Thus, **delaying CABG routinely after NSTEMI might increase resource use without improving outcomes**. Additionally, the timing of CABG for NSTEMI patients might be appropriately determined by clinicians to minimize the risk of adverse clinical events. (J Am Coll Cardiol Intv 2010;3:419–27) © 2010 by the American College of Cardiology Foundation



INTRODUCTION

- NSTEMI
- No difference
 - <24h vs >3 days

Does Timing of Coronary Artery Bypass Surgery Affect Early and Long-Term Outcomes in Patients With Non-ST-Segment-Elevation Myocardial Infarction?

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Background—Current guidelines do not provide recommendations for optimal timing of coronary artery bypass surgery (CABG) in patients with non-ST-segment-elevation myocardial infarction. Our study aimed to determine the impact of CABG timing on early and late outcomes in patients with non-ST-segment-elevation myocardial infarction.

Methods and Results—A total of 758 patients underwent CABG within 21 days after non-ST-segment-elevation myocardial infarction between January 2008 and December 2012 at our institution. The patients were divided into 3 groups according to the time interval between symptom onset and CABG: group A, <24 hours (133 patients); group B, 24 to 72 hours (192 patients); and group C, >72 hours to 21 days (433 patients). Predictors of in-hospital and long-term mortality were identified by logistic and Cox regression analyses, respectively. Overall in-hospital mortality was 5.1% (39 patients): 6.0%, 4.7%, and 5.1% in groups A, B, and C ($P=0.9$), respectively. A total of 118 patients died during follow-up. The 5-year survival was $73.1\pm 2\%$, with a nonsignificant trend toward better survival in groups A ($78.2\pm 4\%$) and C ($75.4\pm 3\%$) compared with group B ($63.6\pm 5\%$; log-rank $P=0.06$). Renal insufficiency and LMD were independent predictors of in-hospital (odds ratio, 3.1; $P=0.001$; and odds ratio, 3.1; $P=0.002$) and long-term mortality (hazard ratio, 1.7; $P=0.004$; and hazard ratio, 1.5; $P=0.02$), whereas administration of P2Y₁₂ inhibitors was protective (odds ratio, 0.3; $P=0.01$).

Conclusions—Emergent CABG within 24 hours of non-ST-segment-elevation myocardial infarction is associated with in-hospital mortality and long-term outcomes similar to those of CABG performed after 3 days, despite a higher risk profile. CABG performed between 24 to 72 hours showed a nonsignificant trend toward poorer long-term outcomes. Dual antiplatelet therapy until surgery is beneficial, whereas renal insufficiency and left main disease increase the risk of early and late death. (*Circulation*. 2015;132:731-740. DOI: 10.1161/CIRCULATIONAHA.115.015279.)





INTRODUCTION

- NSTEMI
- No difference '<' or '>' 3 days

Early surgical myocardial revascularization in non-ST-segment elevation acute coronary syndrome

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Methods: We performed a monocentric-prospective observational study within a 2-year interval. A total of 217 consecutive patients (41 female, age 68.9±10.2, ES II 6.62±8.56) developed NSTEMI and underwent CABG. Patients were divided into two groups according to the time point of coronary artery bypass after symptom onset (group A: <72 h; group B: >72 h). Endpoints included 6-month mortality and incidence of MACE (death, stroke or re-infarction).

Results: There were no differences regarding mortality between both groups (30 days: group A 2.4% vs. group B 3.7%; P=0.592; 6 months: 8.4% vs. 6.0%; P=0.487). Incidence of MACE in the 6-month follow-up was also similar in both groups (group A: 9.6% vs. 9.7%, P=0.982). Regression analysis revealed as independent risk factors for mortality in the entire cohort ES II OR 1.045 (95% CI: 1.004–1.088). ES II remained an independent prognostic factor in group A OR 1.043 (95% CI: 1.003–1.086) and group B OR 1.032 (95% CI: 1.001–1.063).

Conclusions: Early revascularized patients showed a higher level of illness. However, results of early CABG were comparable to those following delayed revascularization. Moreover, EuroSCORE II was determined as independent risk factors for mortality.



ĐẶT VẤN ĐỀ

- No guidelines
- Early or delay?
- Real condition in Vietnam?

ESC
European Society
of Cardiology

European Heart Journal (2023) 00, 1–107
<https://doi.org/10.1093/eurheartj/ehad191>

ESC GUIDELINES

2023 ESC Guidelines for the management of acute coronary syndromes

9.2. Coronary artery bypass grafting

9.2.1. Indication and timing of coronary artery bypass grafting in acute coronary syndrome patients

There are no dedicated RCTs comparing percutaneous vs. surgical revascularization in patients with ACS. In the setting of STEMI, CABG should be considered only when PPCI is not feasible, particularly in the presence of ongoing ischaemia or large areas of jeopardized myocardium.⁴⁷⁹

In patients requiring immediate revascularization in the setting of very high-risk NSTEMI-ACS, PCI is usually preferred for reasons of **timeliness**, unless concomitant mechanical complications dictate a preference for surgical intervention.

In other patients with ACS, the choice of revascularization modality should be made according to the number of diseased vessels and the general principles of myocardial revascularization.²⁵⁰ In patients with MVD, the choice of revascularization modality will be influenced by the overall anatomical disease complexity and the presence of comorbidities (including diabetes) in patients with low predicted surgical risk and mortality who are considered suitable for either modality. This is based on data from two large-scale individual patient meta-analyses.^{480,481}





PATIENTS AND METHOD

- A retrospective review of 307 patients CABG for NSTEMI
- Hanoi Heart Hospital 1/12020 → 31/12/2022.
- 3 group time :
 - Group A <24 hours – 30 patients
 - Group B 24-72h – 65 patients
 - Group C >72h – 212 patients
- In-hospital mortality/morbidity?





PATIENTS AND METHOD

- Decision for CABG made by heart team
- Preoperatively on antiplatelet agents (clopidogrel and/or ticagrelor)
 - 4-unit of red blood cell, 2- unit of platelet pool, and 2- unit of factor VIII
- CPB + cardioplegic cardiac arrest
- Grafts: ITA + Radial (pts<70yo) + Saphenous vein



PATIENTS (1)

<i>Preoperative data</i>	Total (N=307)	Group A (N=30)	Group B (N=65)	Group C (N=212)	<i>P</i>
Age	66,6(8,8)0	66,1 (11,1)	68,7 (8,7)	66,0 (8,4)	0,12
Female	86(27,4)	86 (27,4)	7 (23,3)	22 (33,8)	0,4
Diabetes	118(38,4)	11 (36,7)	20 (30,8)	87 (41,0)	0,32
Hypertension	235(76,5)	22 (73,3)	48 (73,8)	165 (77,8)	0,73
Hyperlipidemia	101(32,9)	9 (30,0)	20 (30,8)	72 (33,96)	0,84
Creatinine Clearance	63,2(22,1)	62,7 (24,8)	61,2 (25,0)	63,9 (20,9)	0,49
EF	47,2(13,8)	46,7 (12,9)	47,5 (12,6)	47,1 (14,4)	0,983
MR >2/4	75(24,4)	10 (33,3)	17 (26,15)	48 (22,6)	0,415
ES II	4,96(7,5)	7,9 (8,9)	10,05 (11,3)	2,9 (4,4)	<0,001



PATIENTS(2)

<i>Preoperative data</i>	Total (N=307)	Group A (N=30)	Group B (N=65)	Group C (N=212)	<i>P</i>
Left main	112(36,5)	15 (50,0)	29 (44,6)	68 (32,1)	0,050
3 Vessel	271(88,3)	24 (80,0)	56 (86,2)	191 (90,1)	0,229
Troponin-T (ng/L)	954,7(1877,9)	1350,8 (1987,02)	2090,2 (3226,9)	550,5 (910,9)	<0,001 ^K
CK-MB (U/L)	60,2(91,1)	91,1 (78,9)	110,9 (132,4)	40,2 (67,3)	0,001^K
NT-ProBNP (pg/ml)	2832,9(4997,7)	1718,9 (2144,5)	5052,6 (9335,4)	2310,04 (2680,9)	0,225^K
Number of bypass	3,55(0,9)	3,3 (0,71)	3,4 (9,74)	3,6 (0,98)	0,136 ^K
Mitral plasty	26(8,47)	0	4 (6,2)	22 (10,4)	0,121
Cross clamp time (minute)	70,8(21,9)	57,3 (15,2)	67,5 (23,1)	73,8 (21,6)	<0,001^K
CPB time (minute)	95,8(26,9)	81,8 (18,8)	98,0 (29,4)	97,1 (26,7)	0,007^K



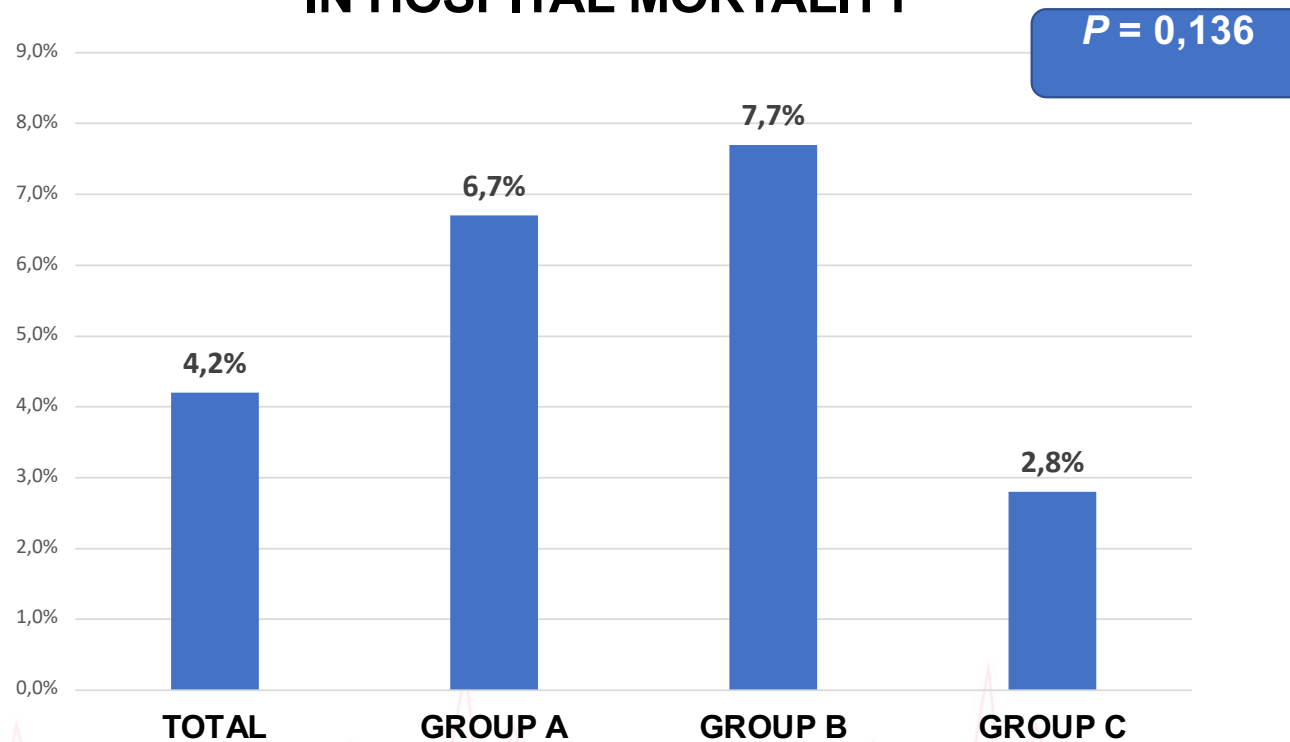
RESULTS & DISCUSSION

<i>Postoperative data</i>	Total	Group A (N=30)	Group B (N=65)	Group C (N=212)	<i>P</i>
IABP	10 (3,3)	1 (3,33)	5 (7,69)	4 (1,89)	0,052
ECMO	1 (0,33)	1 (3,33)	0	0	0,098
Redo for bleeding	4 (1,3)	0	2 (3,1)	2 (0,94)	0,365
Ventricular Fibrillation	8 (2,6)	1 (3,33)	3 (4,6)	4 (1,89)	0,407
Respiratory infection	67 (21,8)	10 (33,3)	17 (26,2)	40 (18,9)	0,127
Acute renal failure	18 (5,9)	3 (10,0)	5 (7,7)	10 (4,7)	0,281
Stroke	5 (1,6)	1 (3,33)	3 (4,6)	1 (0,47)	0,037
Drain within 24h (ml)	384,2 (258,8)	344,6 (217,5)	504,4 (371,9)	352,9 (207,5)	0,006^K
Intubation time (hour)	35,8 (51,4)	54,4 (104,9)	51,01 (63,4)	28,5 (30,4)	0,01^K
Length of stay (day)	12,5 (32,04)	10,4 (4,6)	10,2 (4,0)	12,5 (38,4)	0,289 ^K



RESULTS & DISCUSSION

IN HOSPITAL MORTALITY





CONCLUSION

- Timing of coronary artery bypass graft surgery did not affect early results in patients with Non–ST-segment–elevation myocardial infarction.
- Patient underwent CABG within 2-3 days after onset had higher-risk clinical characteristics and more postoperative bleeding.
- The in-hospital mortality was acceptable



Thank you

