SUPPLEMENTAL MATERIALS

Effect of a standardized heart team protocol versus a guideline-based protocol on revascularization decision stability in stable complex coronary artery disease: rationale and design of a randomized trial of cardiology specialists using historic cases

Contents

Supplemental Methods

Full Definitions of key variables and clinical endpoints

1. **Three-vessel disease:** three lesions with a percent diameter stenosis (DS%) between 50%-99% or total occlusion in a coronary artery with a ≥ 2.5 mm reference vessel diameter by visual assessment.
2. **Left main desease:** left main coronary artery is visually assessed DS% ≥ 50%.
3. **Major adverse cardiovascular and cerebrovascular events (MACCEs):** a composite of death, myocardial infarction, stroke, repeated revascularization, and rehospitalization due to ischemic symptoms.
4. **Death:** death from any cause. The cause of death will be adjudicated as being due to cardiac death or non-cardiac death.
5. **Myocardial infarction (MI)**

   (1) In-hospital MI: Defined as the occurrence during hospitalization after PCI, CABG or coronary angiography meeting at least 1 of the following criteria:

   1) The rise in cardiac troponin I (cTnI) is ⩾ 70 times the 99th percentile URL (where the baseline is lower than the URL, elevated and stable, or falling).
   2) If cTnI was not available, MI was defined with at least one of the following:
      i. New ischaemic ECG changes;
      ii. Development of new pathological Q waves;
      iii. Imaging evidence of loss of viable myocardium that is presumed to be new and in a pattern consistent with an ischaemic etiology;

iv. Angiographic findings consistent with a procedural flow-limiting complication such as coronary dissection, occlusion of a major epicardial artery or graft, side-branch occlusion-thrombus, disruption of collateral flow or distal embolization.

(2) Spontaneous MI: Defined as detection of a rise and/or fall of cTn values with at least one value above the 99th percentile URL after discharge and with at least one of the following:

1) Symptoms of acute myocardial ischemia;
2) New ischaemic ECG changes;
3) Development of pathological Q waves;
4) Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality in a pattern consistent with an ischaemic etiology;
5) Identification of a coronary thrombus by angiography including intracoronary imaging or by autopsy.

6. Stroke was confirmed by a neurologist on the basis of imaging studies and was defined as follows:

1) A focal neurologic deficit of central origin lasting >72 hours, or
2) A focal neurologic deficit of central origin lasting >24 hours, with imaging evidence of cerebral infarction or intracerebral hemorrhage, or
3) A non-focal encephalopathy lasting >24 hours with imaging evidence of cerebral infarction or hemorrhage adequate to account for the clinical state.

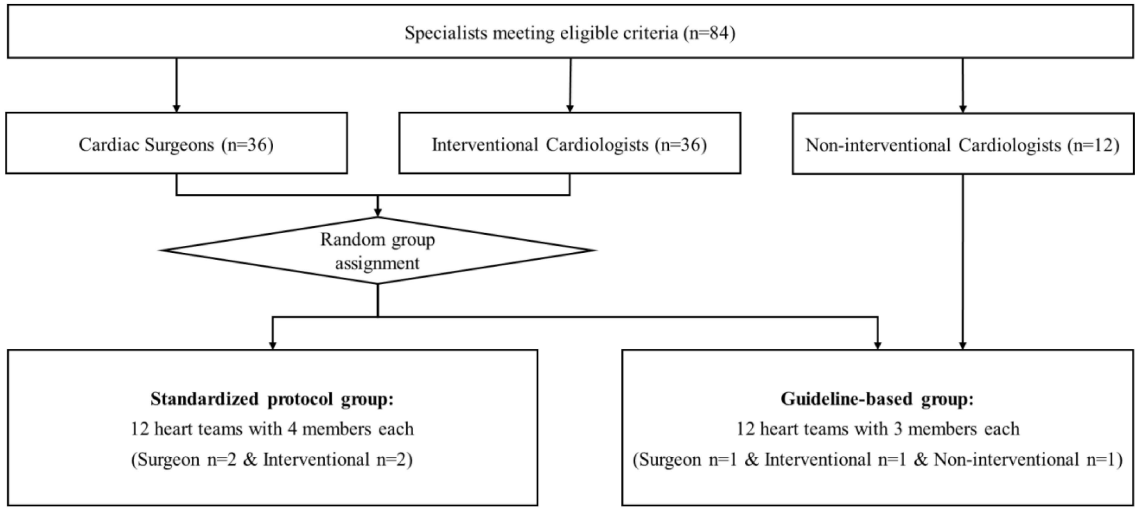
7. **Repeat revascularization** was defined as any repeat coronary artery bypass graft (CABG) or PCI.
    1) Target Lesion: Lesions were revascularized in the index procedure (or during a planned or provisional staged procedure).
    2) Non-Target Vessel: Lesions were not treated by either PCI or CABG at the index procedure.
8. **Rehospitalization due to ischmic symptoms:** rehospitalization because of ischemic discomfort (angina or symptoms thought to be equivalent).

Inclusion and exclusion criteria of cases to be discussed

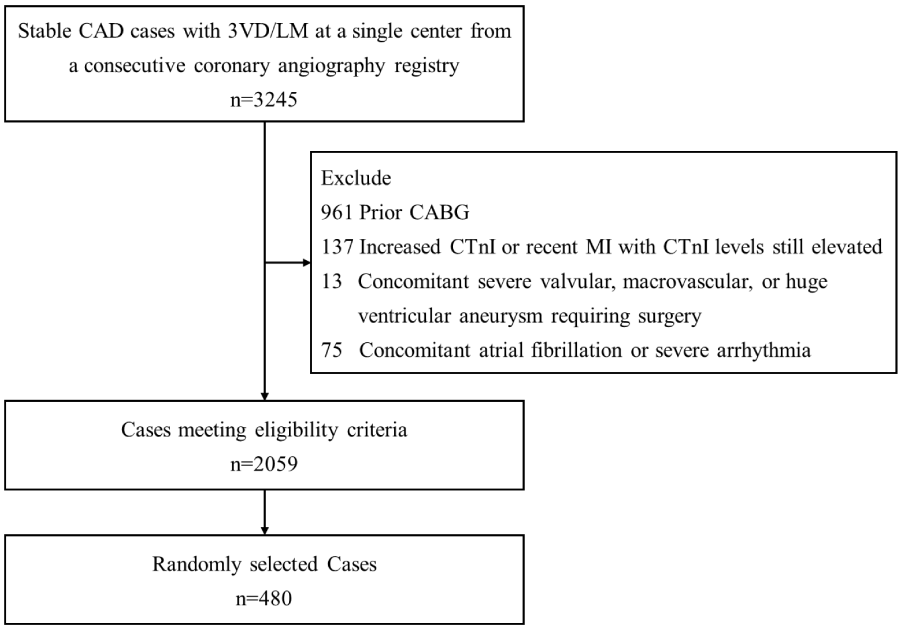
Adult patients with stable CAD according to the National Cardiovascular Data Registry (NCDR) CathPCI criteria (stable angina, no or silent myocardial ischemia) and angiographically confirmed 3-vessel disease or left main (3VD/LM) disease will be eligible for inclusion in the study. The exclusion criteria included: (1) prior coronary artery bypass grafting (CABG); (2) cardiac troponin I (CTnI) greater than the local laboratory upper limit of normal or recent myocardial infarction with CTnI levels still elevated; (3) concomitant severe valvular disease, macrovascular disease, or huge ventricular aneurysm requiring surgery; (4) concomitant atrial fibrillation or severe arrhythmia; or (5) unavailable de novo angiography images of the current hospitalization. Eligible cases will be randomly selected from a prospective registry of consecutive patients who underwent coronary angiography between August 2016 and August 2017.

Supplementary Figures

Online Figure 1. Specialist Enrollment Flowchart

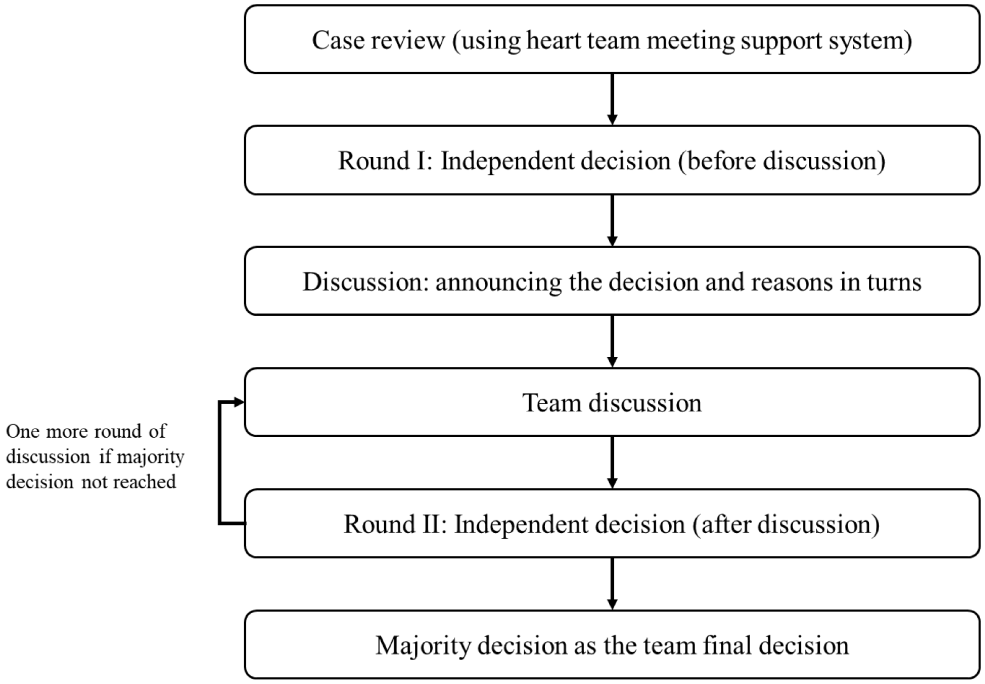


Online Figure 2. Cases Selection Flowchart



3VD indicates 3-vessel disease; CTnI, cardiac troponin I, LM, left main; MI, myocardial infarction; PCI, percutaneous coronary intervention.

88 **Online Figure 3. Standard heart team meeting procedure**



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Supplementary Tables

Online Table 1. Structured patient information

Heart Team Patient Information Sheet

A. Demograpgics

Patient ID:_____ Gender: ☐Male ☐female Age:_____y BMI :_____kg/m ^{2}

B. Medical history and risk factors

Diabetes	☐ Yes ☐No	
History of myocardial infarction	☐ Yes ☐No	Time: _____
History of heart failure	☐ Yes ☐No	EF value: _____%
History of stroke	☐ Yes ☐No	
renal insufficiency	☐ Yes ☐No	Creatinine: _____umol/L (44-133) Creatinine clearance: _____ml/min
Chronic obstructive pulmonary disease	☐ Yes ☐No	
Other comorbidities: *congenital mitral valve prolapse, hypertension, post-operative hypothyroidism, kidney stones*		

C. Coronary heart disease symptoms

Coronary heart disease symptoms	☐Unstable Angina ☐stable angina ☐Asymptomatic
Home antianginal medication	☐ Long-acting nitrates ☐ β -blockers ☐ Ca2+ channel blockers
CCS classification (stable angina)	☐I ☐II ☐III ☐IV ☐Asymptomatic
NYHA classification	☐I ☐II ☐III ☐IV

98 **D. Laboratory test**

Hemoglobin: _____g/L	White blood cells:_____ *10^9/L	Platelets:_____*10^9/L
PT: _____s (11.5-14.5)	APTT: _____s (28.5-43.5)	INR: _____(0.8-1.2)
Troponin I: _____ng/ml (ll_____:ul_____)		

99 **E. Preoperative non-invasive examination**

	Result
Admission ECG	*Sinus bradycardia 58 beats/min*
Echocardiography	*Mitral valve posterior leaflet prolapse, mitral valve regurgitation*
Stress Testing and Nuclear Medicine	
Coronary CTA	
Cardiac MRI	

100 **F. Invasive coronary examination**

Anigiography	FFR:	IVUS:	OCT:
QFR	LM (left main artery): _____	LAD (left anterior descending artery:_	
	LCX (left circumflex artery):_____	RCA (right coronary artery):_____	
	Obtusemarginal:_____	Diagonal:_____	
	Posterior descending artery:_____	Left posterior artery:_____	
	Ramus medianus:_____		

101 **G. Clinical risk scores**

SYNTAX	Score:_____

S YNTAX II	PCI Score: 30.0(9.8%)	CABG Score: 32.5(10.2%)	Recommended:/
SYNTAX II 2020	PCI score: 9.8%	CABG Score: 10.2%	
EuroScore II	Mortality: 0.7%		
SinoScore II	Mortality: 0.7%		
STS Score	Mortality: 0.49%	Mortality and complication rate: 9.95%	
	Renal failure rate: 0.39%	Stroke rate: 1.27%	
	Prolonged ventilation rate: 5.8%	Deep sternum infection rate: 0.36%	
	Reoperation rate: 2.37%	Extended hospital stay rate: 4.34%	

* Guidelines recommend STSscore mortality >2% with higher surgical risk

H. Decision result (single choice)

Independent decision before discussion	☐PCI ☐CABG ☐PCI /CABG ☐Drugs ☐Further inspection
Independent decision after discussion	☐PCI ☐CABG ☐PCI /CABG ☐Drugs ☐Further inspection

106 **Online Table 2. Ten-Item Personality Inventory in China (TIPI-C)**

Question No.*	Original items (Gosling et al., 2003)	Rating Scale						
		Absolutely disagree	Quite disagree	Almost disagree	Uncertain	Almost agree	Quite agree	Absolutely agree
		1	2	3	4	5	6	7
1	Extraverted, enthusiastic							
2	Critical, quarrelsome							
3	Dependable, self-disciplined							
4	Anxious, easily upset							
5	Open to new experience, complex							
6	Reserved, quiet							
7	Sympathetic, warm							
8	Disorganized, careless							

9	Calm, emotionally stable							
10	Conventional, uncreative							

*Scale scoring ("R" denotes reverse-scored items): Extraversion: 1, 6R; Agreeableness: 2R, 7; Conscientiousness: 3, 8R; Emotional Stability: 4R, 9; Openness to Experiences: 5, 10R.

Online Table 3. Tabular analysis of inter-team agreement

Case ID	Interventional group			Guideline group		
	Hear team 1 decision	Hear team 2 decision	agreement	Hear team 1' decision	Hear team 2' decision	agreement
001	CABG	CABG	Yes	PCI	CABG	No
002	CABG	PCI	No	PCI	PCI	Yes
003	Medication	PCI	No	Further testing	PCI	No
…	…	…	…	…	…	…
…	…	…	…	…	…	…
480	PCI	PCI	Yes	PCI	Medication	No

Online Table 3. Tabular analysis of inter-team agreement. Each case will be discussed by two assigned heart teams. The pairwise comparison between the heart team's decision on each case provides data on the agreement. CABG indicates coronary artery bypass grafting; PCI, percutaneous coronary intervention.