



NHỒI MÁU CƠ TIM KÈM BLOCK NHÁNH TRÁI

NHỮNG ĐIỀU BS CẦN BIẾT

BS NGUYỄN THANH HIỀN

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1. MỞ ĐẦU: VẤN ĐỀ CẦN QUAN TÂM
2. ĐẶC ĐIỂM BN NMCT/LBBB
3. TIÊN LƯỢNG
4. TIẾP CẬN CHẨN ĐOÁN:
 - ❖ Tiêu chuẩn **Sgarbossa**
 - ❖ Các tiêu chuẩn khác: **Cabrera**
 - ❖ Động học ECG
 - ❖ Giảm biên độ sóng R
 - ❖ Tiếp cận chung
5. TIẾP CẬN ĐIỀU TRỊ
6. THÔNG điệp MANG VỀ

MỞ ĐẦU: VẤN ĐỀ CẦN QUAN TÂM

➤ BN có đau ngực và LBBB: tỉ lệ NMCT: 12-32%.

➤ Khó khăn trong CĐ khi hiện diện LBBB dẫn tới ít được ĐT phù hợp (ASA, chọn beta, TSH-78% BN có chỉ định đc dùng), và có nhiều bệnh kết hợp hơn, tăng TV trong BV

➤ Những bằng chứng gần đây:

- **Wong và cs (2005)**: TN HERO-2 (N = 15640; 300 LBBB): tỉ lệ NMCT là như nhau bất kể LBBB là cũ hay mới; trừ khi có sự thay đổi ST cùng chiều (concordant).
- **Chang và cs (2009)**: những bn đau ngực và LBBB mới (hoặc giả định mới) (N = 55) khả năng NMCT hoặc tử vong trong vòng 30 ngày không > những bn LBBB cũ hoặc không có LBBB (N = 136 và 7746)
- **Neeland và cs (2012)**: chỉ có # 40% (89/225) bn LBBB giả định là mới có tổn thương thụ phạm trên CMV.
- **Hướng dẫn từ năm 2013** về NMCT có ST chênh lên đã thôi dùng LBBB mới hoặc giả định mới là tiêu chuẩn CĐ NMCT “đơn độc”

MỞ ĐẦU: VẤN ĐỀ CẦN QUAN TÂM

Các cơ chế bệnh học gây nhiễu

- LBBB mới do NMCT
- Hoặc LBBB thứ phát do bệnh tim cấu trúc có sẵn
- LBBB là nguyên nhân hay hậu quả?
- Bauer (1965): NMCT cấp thật sự có liên quan với LBBB thì có tỉ lệ tử vong rất cao
- Thường NMCT diện rộng, thành trước. Tắc đoạn gần LAD? (Chỉ vài trường hợp hiếm, LBBB có thể do nhồi máu ở phần xa của bó His. (discreetly).
- Chẩn đoán dựa vào ECG thì đặc biệt khó khăn do sự khử cực thất bị thay đổi.

Đau ngực cấp với LBBB có thể biểu hiện theo 1/3 cách sau đây:

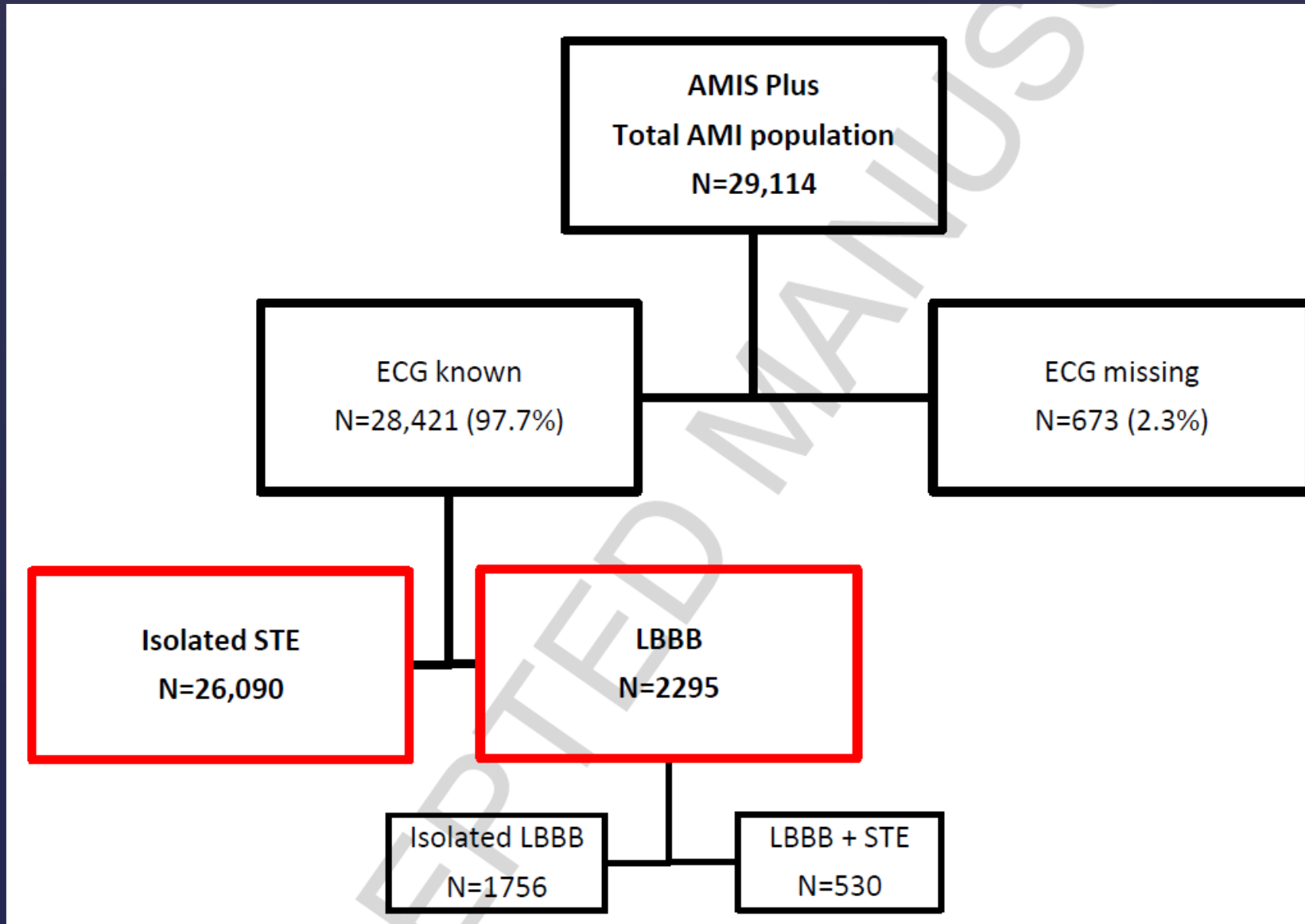
- I. Thường gặp nhất – LBBB nhưng không có ECG trước đây.
- II. LBBB và ECG trước đó không có LBBB
- III. LBBB và đã có LBBB trên ECG cũ

MỞ ĐẦU: VẤN ĐỀ CẦN QUAN TÂM

Vấn đề y đức

- Sử dụng thuốc TSH khi không cần thiết?
- Nguy cơ chảy máu
 - Dữ liệu FTT 1.1 – 1.3% s/s với 0.4% trong nhóm chứng
 - NNT cho streptokinase 25
- 19-31% BN có LBBB (bao gồm cả ST chênh cùng chiều) không có tổn thương MV có ý nghĩa khi chụp. Giá cả? PCI sẵn có?

ĐẶC ĐIỂM BN NMCT/LBBB



ĐẶC ĐIỂM BN NMCT/LBBB: lâm sàng

Table 1 Baseline characteristics according to initial ECG finding (n=28,385)

	STE	LBBB	P value
Number of patients	26,090	2295	
Male gender (%)	19,338/26,090 (74.1)	1554/2295 (67.7)	<0.001
Age in years, mean (SD)	64.3 (13.2)	75.0 (10.7)	<0.001
Delay in min (symptoms-admission) Median (IQR)*	185 (101, 455)	265 (120, 734)	<0.001
Delay in min (symptoms-FMC) Median (IQR)*	95 (40-270)	130 (45, 433)	<0.001
Resuscitation prior admission (%)	1689/25,827 (6.5)	168/2253 (7.5)	0.091
Symptoms at admission			
pain (%)	22,784/25,213 (90.4)	1658/2138 (77.5)	<0.001
dyspnea (%)	5913/23,001 (25.7)	1022/2067 (49.4)	<0.001
Vital signs at admission, mean (SD)			
systolic blood pressure (mmHg)	133.2 (28.0)	134.8 (30.2)	0.008
diastolic (mmHg)	79.0 (17.9)	77.1 (18.8)	<0.001
heart rate (beats/min)	78.2 (19.6)	86.8 (25.0)	<0.001
Heart rhythm			
Sinus rhythm (%)	21,067/22,750 (92.6)	1513/1916 (79.0)	<0.001
Atrial fibrillation (%)	864/22,750 (3.8)	226/1916 (11.8)	<0.001

ĐẶC ĐIỂM BN NMCT/LBBB: lâm sàng

	STE	LBBB	P value
Number of patients	26,090	2295	
ST-elevation	26,090/26,090 (100)	530/2295 (23.1)	<0.001
Killip classes III and IV	1811/25,746 (7.0)	457/2250 (20.3)	<0.001
Risk factors			
Family history (%)	4657/13,907 (33.5)	284/950 (29.9)	0.023
Smoking (%)	10,538/23,781 (44.3)	443/1982 (22.4)	<0.001
Dyslipidemia (%)	12,363/23,065 (53.6)	1144/1955 (58.5)	<0.001
Hypertension (%)	13,178/24,605 (53.6)	1653/2177 (75.9)	<0.001
Diabetes (%)	4351/24,876 (17.5)	710/2207 (32.2)	<0.001
Obesity (BMI>30) (%)	4163/21,525 (19.3)	385/1765 (21.8)	0.012
Prior coronary artery disease (%)	6443/23,928 (26.9)	1142/2130 (53.6)	<0.001
Heart failure (%)	396/20,292 (2.0)	215/1694 (12.7)	<0.001
Prior cerebrovascular disease (%)	905/20,374 (4.4)	175/1711 (10.2)	<0.001
Peripheral arterial disease (%)	749/20,374 (3.7)	180/1711 (10.5)	<0.001
Moderate or severe renal disease (%) (serum creatinine >160μmol/L)	1005/20,375 (4.9)	294/1711 (17.2)	<0.001
Charlson Comorbidity Index >1 (%)	3537/26,090 (13.6)	751/2295 (32.7)	<0.001

ĐẶC ĐIỂM BN NMCT/LBBB: điều trị

Table 2. Immediate therapies according to initial ECG findings (given within the first 24 hours)

	STE	LBBB	P value	OR adjusted for age and gender	95% confidence interval (CI)
Number of patients	26,090	2295			
Aspirin (%)	25,020/25,927 (96.5)	2015/2266 (88.9)	<0.001	0.40	0.34-0.47
P2Y12 inhibitors (%)	18,537/25,868 (71.7)	1112/2258 (49.2)	<0.001	0.50	0.45-0.54
GP IIb/IIIa antagonist	7300/22,515 (32.4)	262/1894 (13.8)	<0.001	0.47	0.41-0.54
Heparin (UFH or LMWH) (%)	23,305/25,893 (90.0)	1907/2267 (84.1)	<0.001	0.68	0.60-0.77

ĐẶC ĐIỂM BN NMCT/LBBB: điều trị

Table 2. Immediate therapies according to initial ECG findings (given within the first 24 hours)

	STE	LBBB	P value	OR adjusted for age and gender	95% confidence interval (CI)
Beta blocker (%)	16,417/25,756 (63.7)	1219/2255 (54.1)	<0.001	0.81	0.76-0.89
ACEI/ARB antagonist	13,237/25,638 (51.6)	1138/2253 (50.5)	0.31	0.98	0.89-1.07
Nitrate (%)	14,827/25,663 (57.8)	1321/2245 (58.8)	0.34	1.03	0.94-1.13
Statin (%)	15,905/20,965 (75.9)	1074/1741 (61.7)	<0.001	0.70	0.63-0.76
Thrombolysis (%)	3460/25,993 (13.3)	117/2274 (5.1)	<0.001	0.40	0.33-0.48
Coronary angiography	19,630/26,090 (75.3)	1031/2295 (44.9)	<0.001	0.38	0.35-0.42
PCI (%)	19,355/26,090 (74.2)	966/2295 (42.1)	<0.001	0.38	0.35-0.42
CABG (%)	1070/25,500 (4.2)	112/2246 (5.0)	0.079	1.22	0.99-1.51

n/N = number of patients with a characteristic/number of patients with available data

ĐẶC ĐIỂM BN NMCT/LBBB: tg ĐT và tiên lượng

Table 3 . Outcome in hospital according to initial ECG

	STE	LBBB	P value
	26,090	2295	
Length of stay in days, median (IQR)	6 (2, 10)	8 (3, 13)	<0.001
Cardiogenic shock after admission (%)	1642/25,834 (6.4)	286/2252 (11.6)	<0.001
Reinfarction (%)	467/25,881 (1.8)	62/2261 (2.7)	0.002
Cerebrovascular event (%)	240/25,785 (0.9)	32/2250 (1.4)	0.028
All-cause mortality (%)	1707/26,090 (6.5)	371/2295 (16.2)	<0.001
MACCE (%)	2102/25,751 (8.2)	394/2244 (17.6)	<0.001

TIỀN LƯỢNG BN NMCT/LBBB: LBBB MỚI

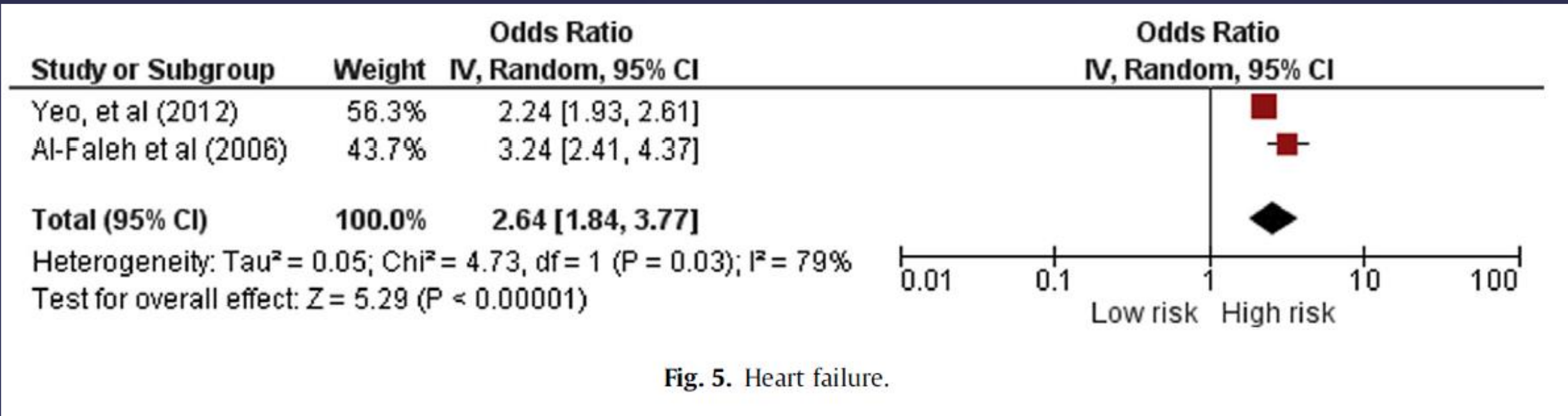
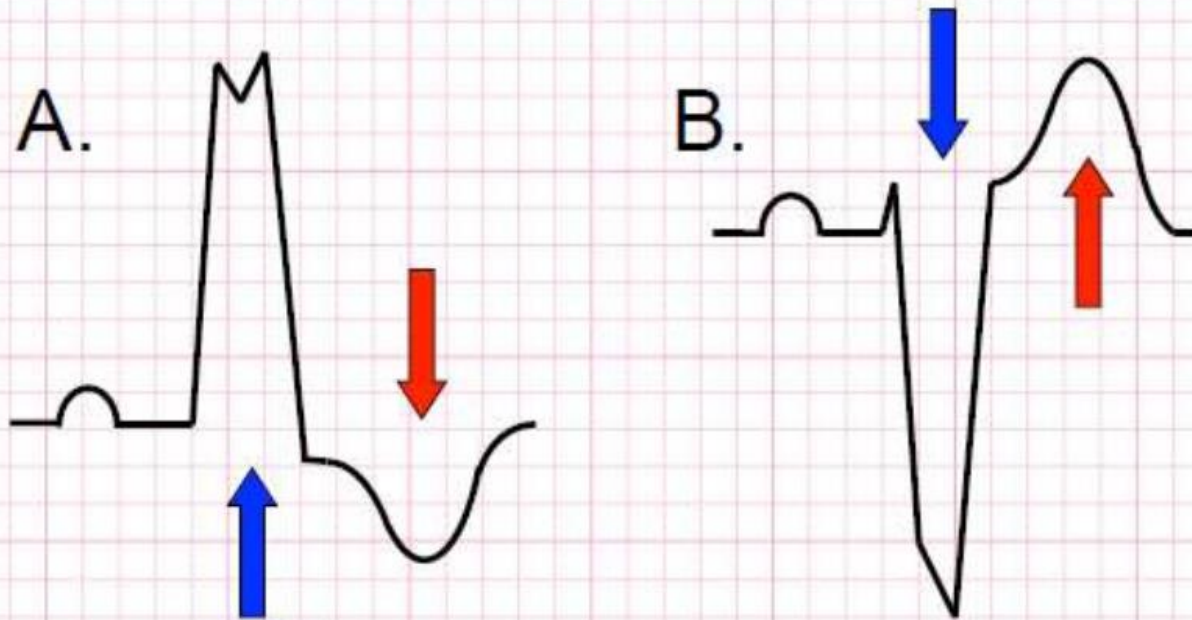


Fig. 5. Heart failure.

Nếu kèm thay đổi ECG: nguy cơ TV cao hơn

TIẾP CẬN CHẨN ĐOÁN: HÌNH ẢNH LBBB BÌNH THƯỜNG

Appropriate ST-Segment and T-Wave Discordance



Normal for LBBB and paced rhythm

LBBB findings

- 12-Lead ECG findings
- QRS > 0.12 in limb leads
- Leads
- Large and wide R waves — leads I, aVL, V5, and V6
- Small R wave followed by deep S wave — leads II, III, aVF, V1–V3

TIẾP CẬN CHẨN ĐOÁN: Tiêu chuẩn Sgarbossa

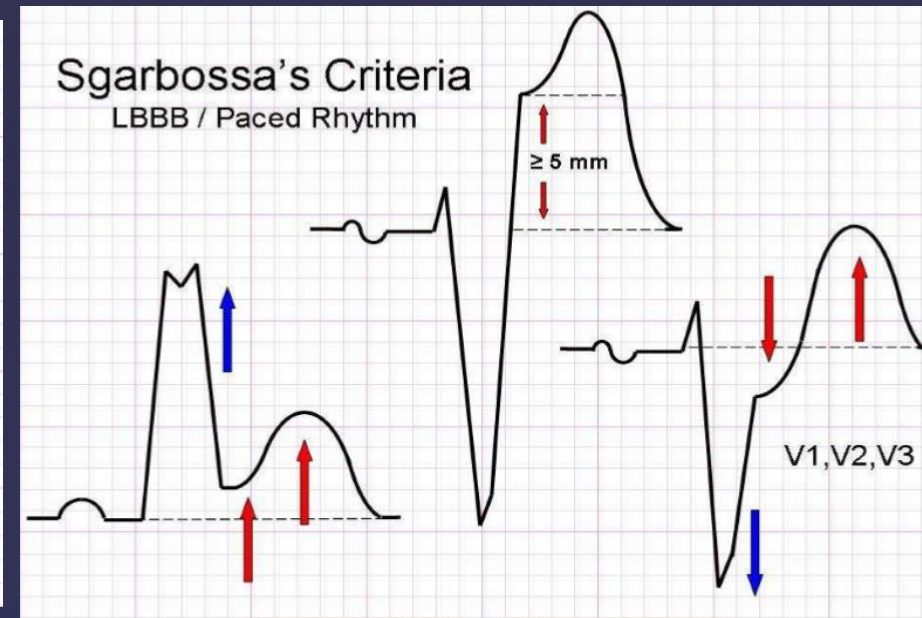
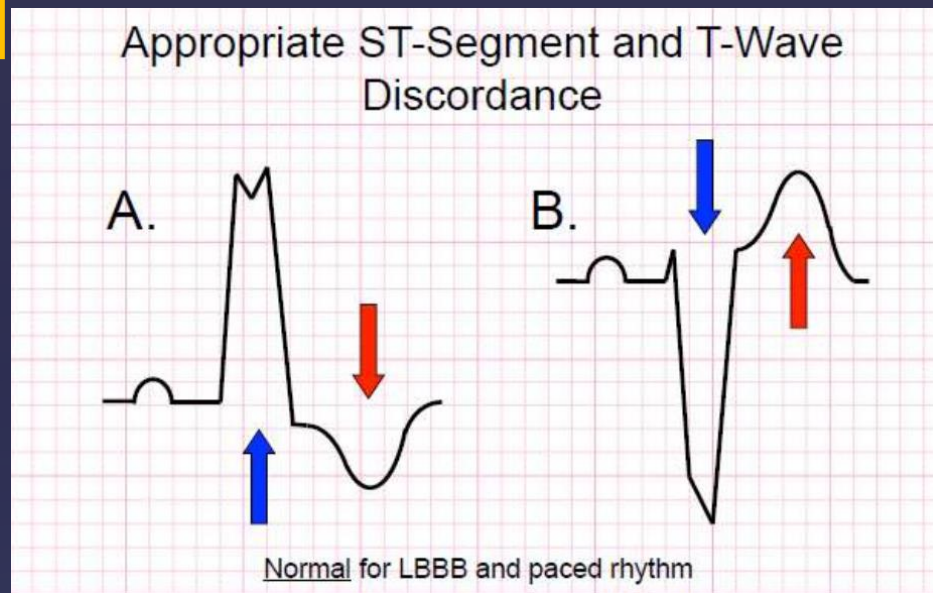


Fig. 3 ▲ Schematic depiction of the Sgarbossa Criteria. a ST elevation $\geq 1 \text{ mm}$ concordant with the QRS complex. b ST depression $\geq 1 \text{ mm}$ in lead V1, V2, or V3. c ST elevation $\geq 5 \text{ mm}$ discordant with the QRS complex. The blue dashed line marks the ST segment

TIẾP CẬN CHẨN ĐOÁN: Tiêu chuẩn Sgarbossa

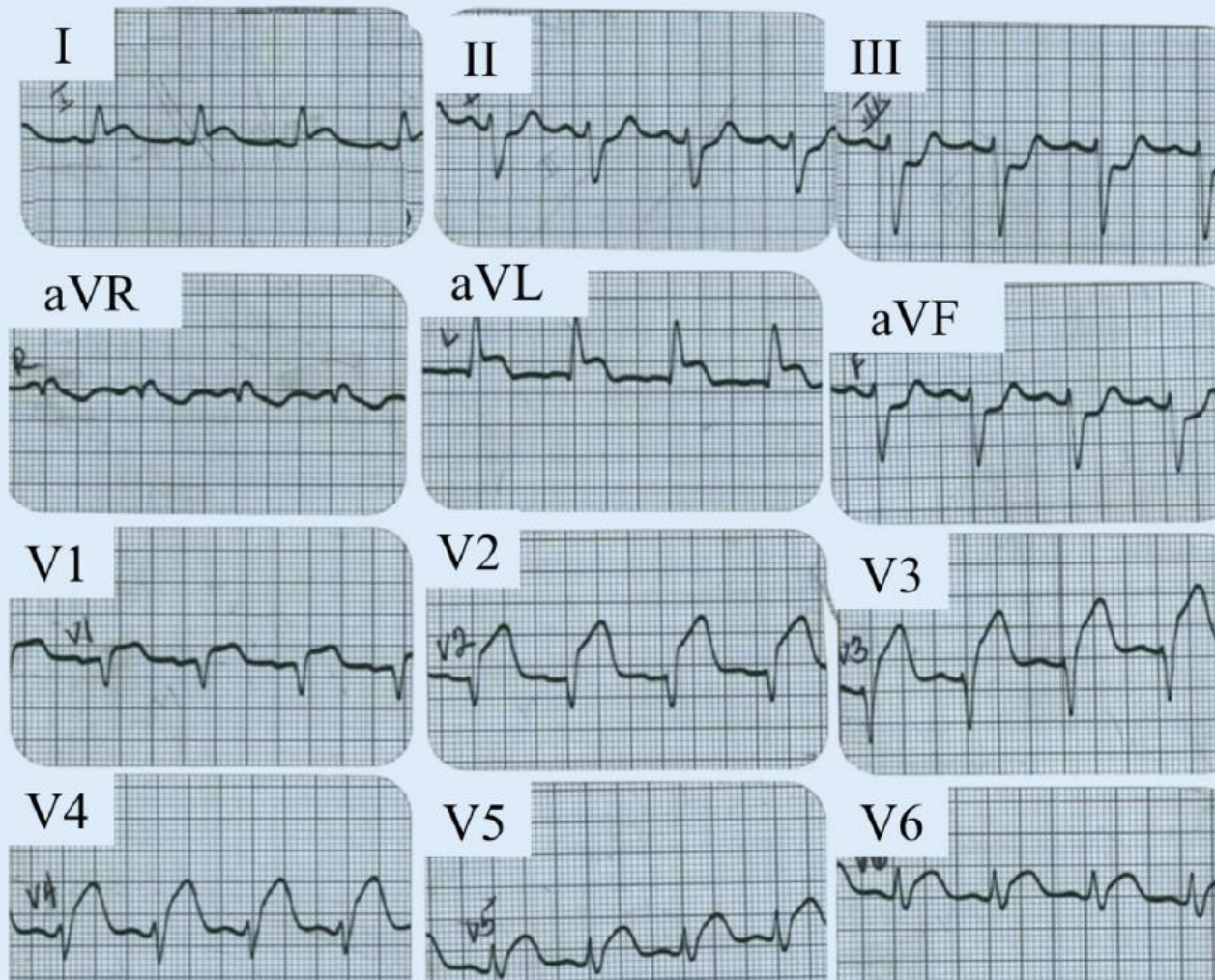
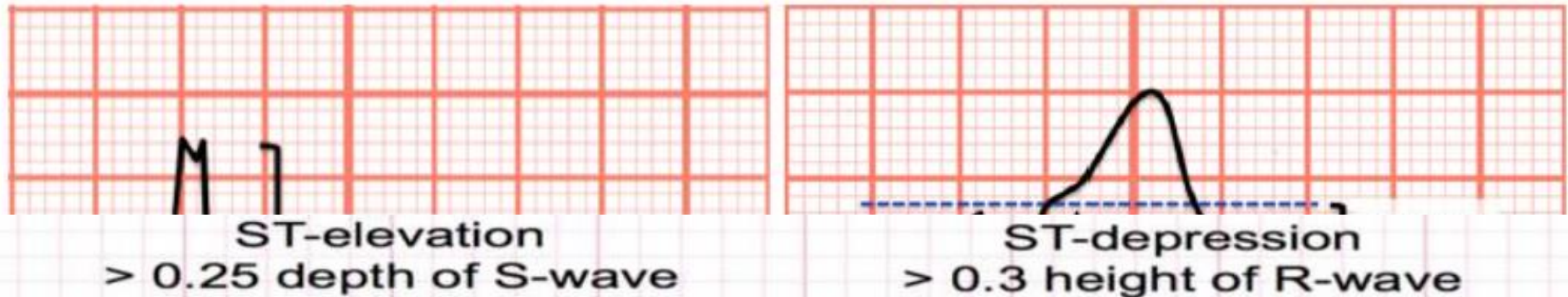


Fig. 4 ◀ The ECG above shows evidence of acute myocardial infarction in the setting of sinus rhythm and left bundle branch block. The ECG fulfills all three criteria outlined by Sgarbossa et al. There is ST elevation >1 mm in aVL concordant with the QRS complex (5 points). There is ST depression >1 mm in leads III and aVF, concordant with the QRS complex (3 points), and there is ST elevation >5 mm in leads V2 and V3, discordant with the QRS complex (2 points). Strictly speaking this conduction abnormality should be read as an intraventricular conduction delay. (Reproduced with permission from Barold et al. [14])

Excessive Discordance with LBBB

Smith modification to Sgarbossa's Criteria



Increased sensitivity from 20% to 90% and decreased specificity from 98 to 90%

Fig. 5 ▲ The modified Sgarbossa criteria utilize the ST/S or ST/R ratio as a measure of excessive discordant ST-segment elevation or depression with respect to the QRS complex (proportional discordance). The degree of ST-segment elevation or depression is measured at the J-point. a ST depression = -4 mm and QRS = 12 mm. The ST/R ratio = -0.30. b ST elevation = 3.5 mm and S = -10 mm; ST/S ratio = -0.35. A ratio of ≤ -0.30 , with either ST elevation or depression, was 100% sensitive and 88% specific for the diagnosis of ST elevation MI

TIẾP CẬN CHẨN ĐOÁN: Tiêu chuẩn Cabrera's

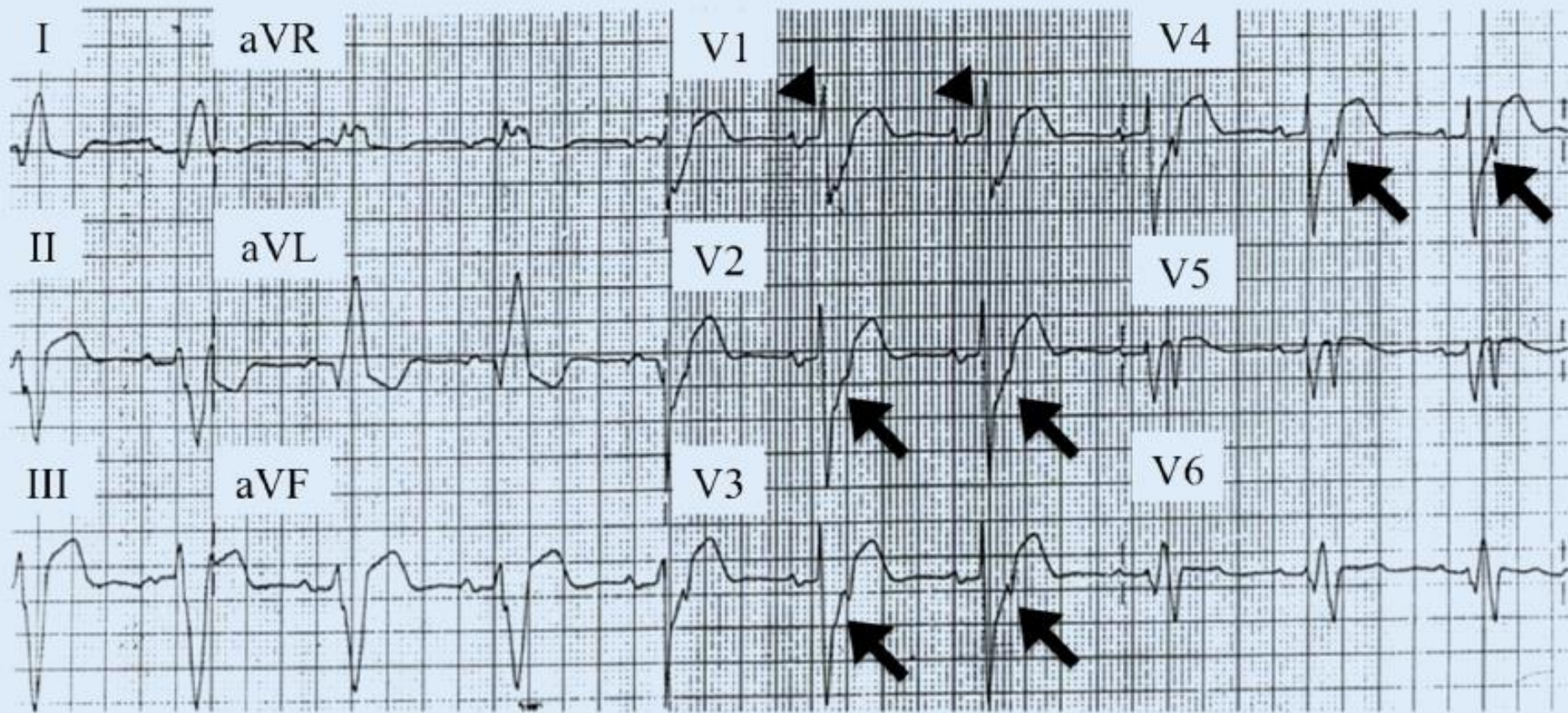


Fig. 6 ◀ ECG evidence of an old myocardial infarction (MI) in the setting of left bundle branch block (LBBB). The ECG above was acquired one month status-post acute MI. It is a follow-up ECG for **Fig. 4**. Lead V1 shows a steep upslope of the initial R wave (*dagger*). Leads V2–V4 show Cabrera's sign (*solid arrows*), and there is poor R-wave progression from V4–V6. (Reproduced with permission from Barold et al. [14])

ĐỘNG HỌC ECG/LBBS

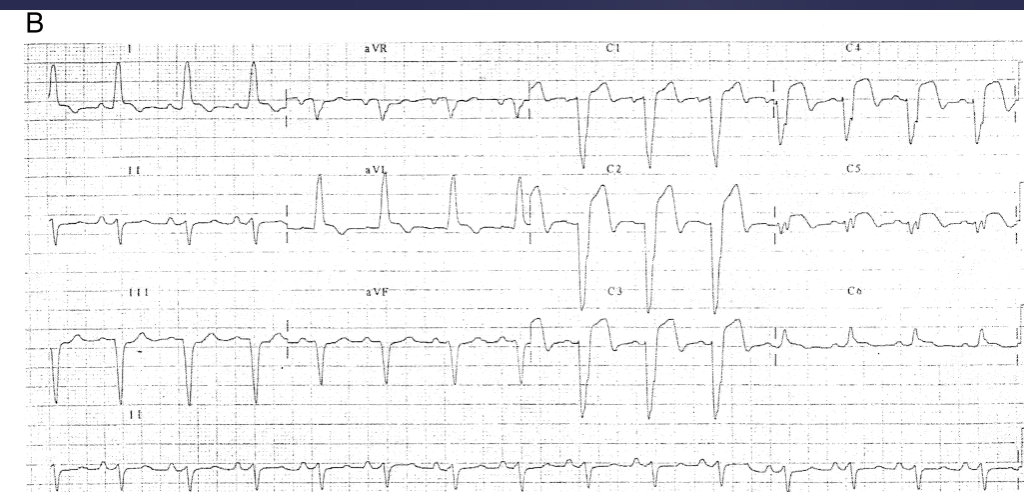
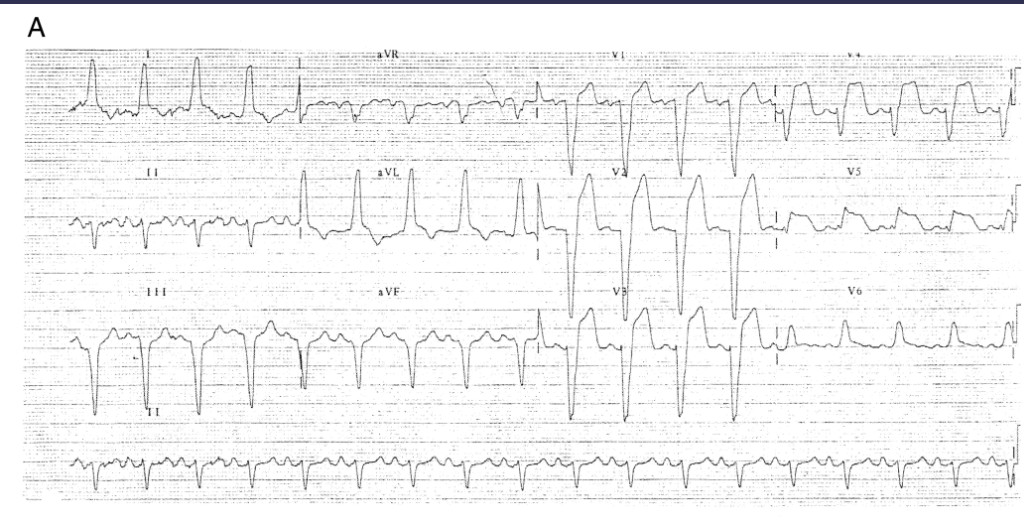


Figure 1. (A) Randomization and (B) 60-min electrocardiograms in a patient in whom concordant ST-segment elevation in lead V₅ became discordant ST-segment elevation because the net QRS deflection in lead V₅ became negative by 60 min.

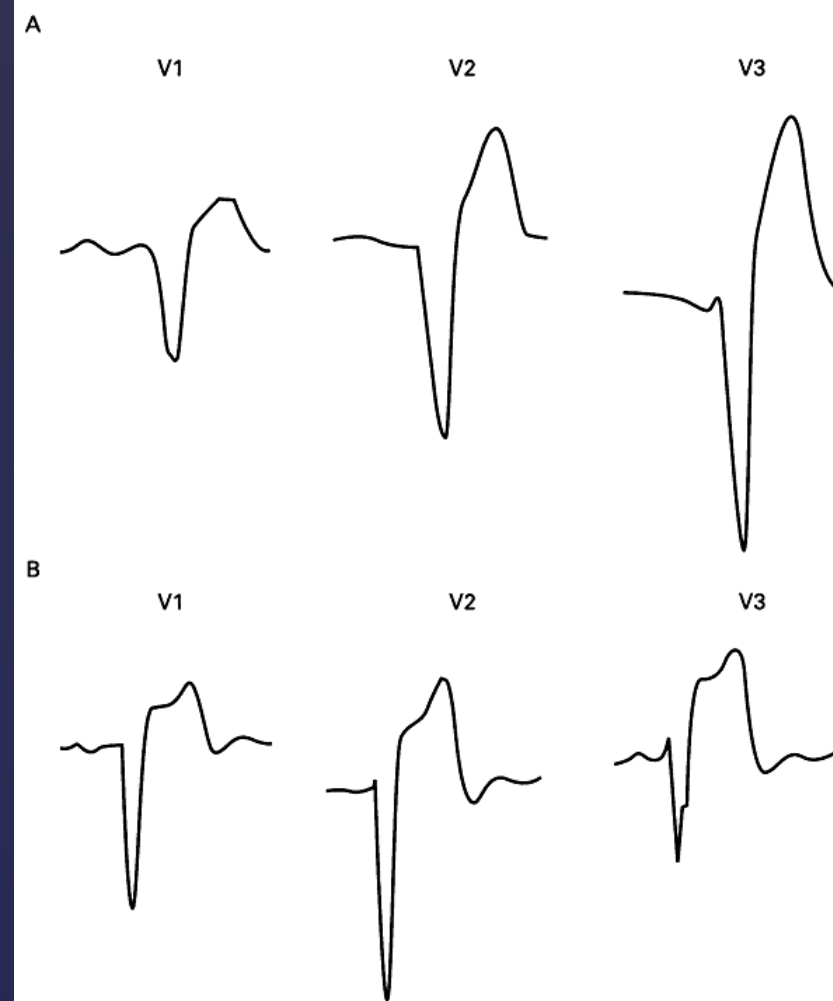


Figure 2 Serial ECG changes in patients with biochemical evidence of AMI. (A) Leads V₁, V₂, V₃ recorded at 0538 hours; (B) leads V₁, V₂, V₃ recorded at 0736 hours, showing evolving ST segment elevation.

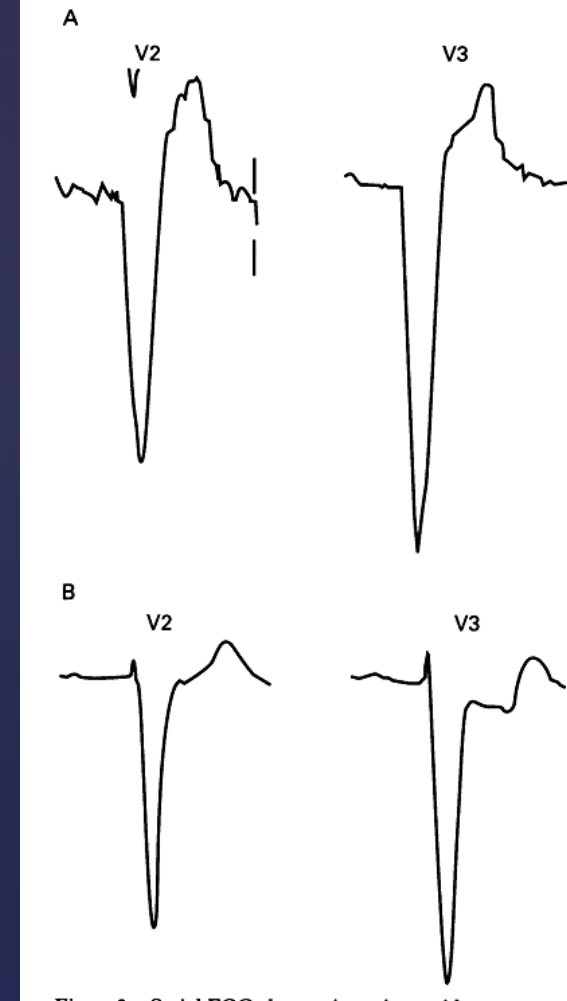


Figure 3 Serial ECG changes in patients with biochemical evidence of AMI. (A) Leads V₂ and V₃ recorded at 1454 hours; (B) leads V₂ and V₃ recorded at 1508 hours, showing ST segment depression.

Patients With Prolonged Ischemic Chest Pain and Presumed-New Left Bundle Branch Block Have Heterogeneous Outcomes Depending on the Presence of ST-Segment Changes. *J Am Coll Cardiol* 2005;46:29–38

Suspected myocardial infarction and left bundle branch block: electrocardiographic indicators of acute ischaemia. *JAccid Emerg Med* 1999;16:331-335

TIẾP CẬN CHẨN ĐOÁN: Giảm biên độ sóng R

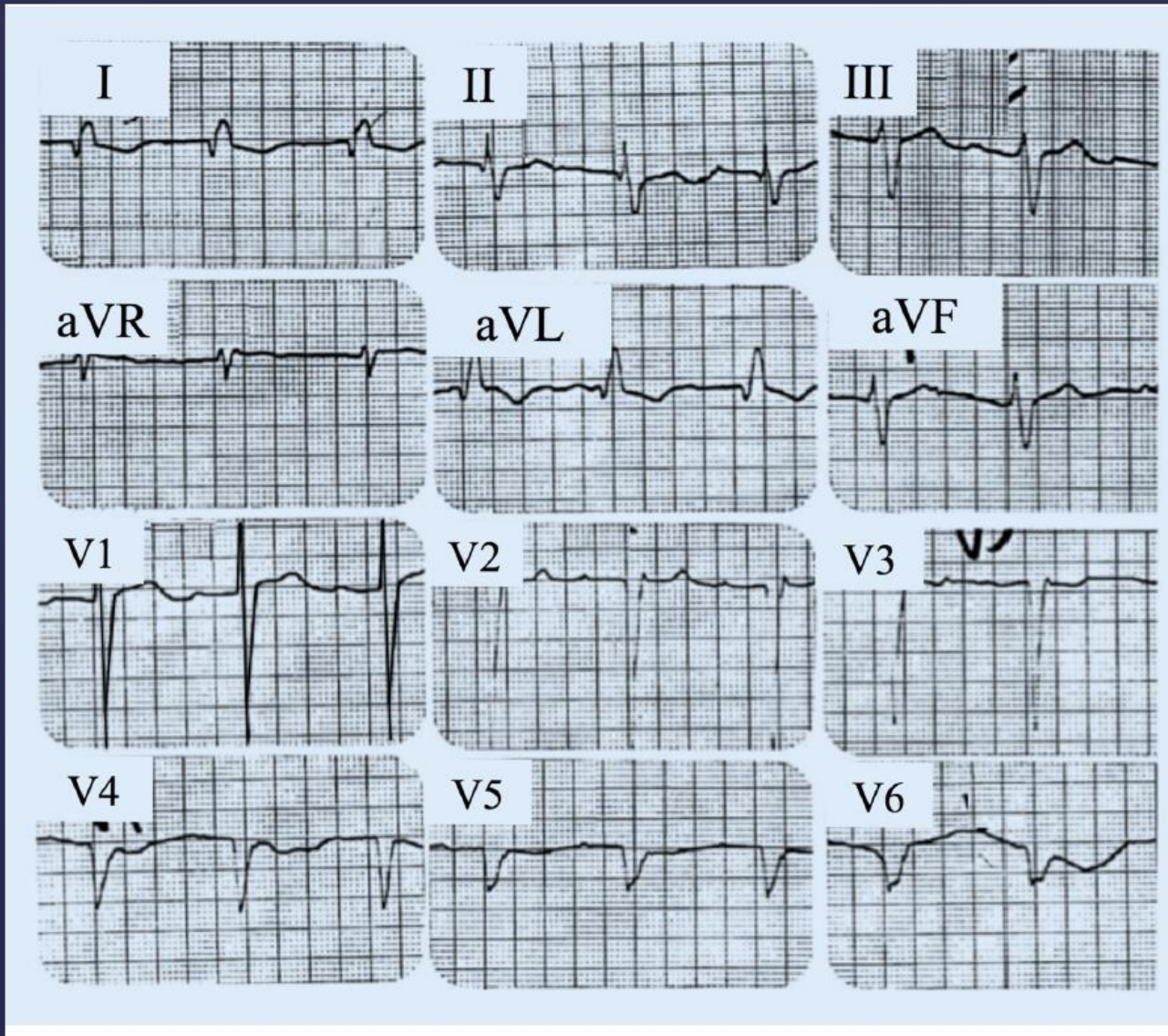


Fig. 8 ◀ The ECG shows sinus rhythm with first-degree AV block, complete left bundle branch block (LBBB), and intraventricular conduction delay. There is a rapid initial positive deflection in of the R wave in lead V1, indicative of an old anteroseptal myocardial infarction (MI) in the setting of LBBB. There is also poor R-wave progression from V1 to V6, consistent with anterior MI. (Reproduced with permission from Barold et al. [14])

TIẾP CẬN CHẨN ĐOÁN: giá trị chẩn đoán

Table 1. Individual Electrocardiographic Predictors of Acute Myocardial Infarction

Feature	Comment
ST-segment elevation ≥ 1 mm in lead with concordant QRS complex	5 Points

Table 1 Odds ratios and scores for independent electrocardiographic criteria from Sgarbossa et al. [2]

Criterion	Odds ratio (95 % CI)	Score
ST-segment elevation ≥ 1 mm and concordant with QRS complex	25.2 (11.6–54.7)	5
ST-segment depression ≥ 1 mm in lead V1, V2, or V3	6.0 (1.9–19.3)	3
ST-segment elevation ≥ 5 mm and discordant with QRS complex	4.3 (1.8–10.6)	2

upright QRS complex or ≥ 1 mm in leads with a dominant negative QRS complex

Positive T waves in leads with a dominant upright QRS complex

Notching of the ascending limb of the R wave in I, aVL, or V₆ Sign of Chapman

*Criteria used in Sgarbossa et al⁵ ECG algorithm. A positive test result has at least 3 points.

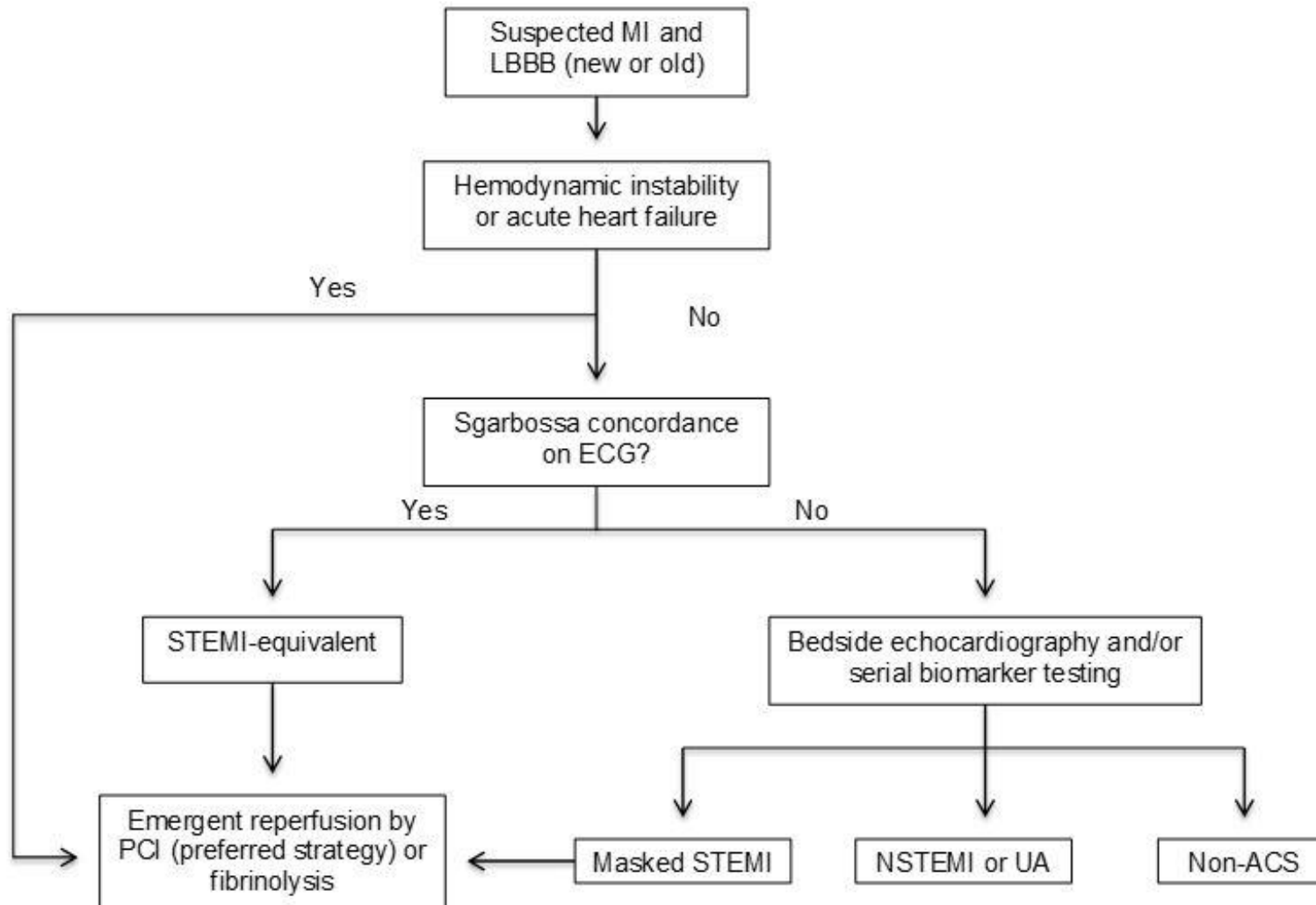
TIẾP CẬN CHẨN ĐOÁN: giá trị chẩn đoán

Table 2 Results of the univariate analysis of the electrocardiographic criteria in the study of Sgarbossa et al. [2]

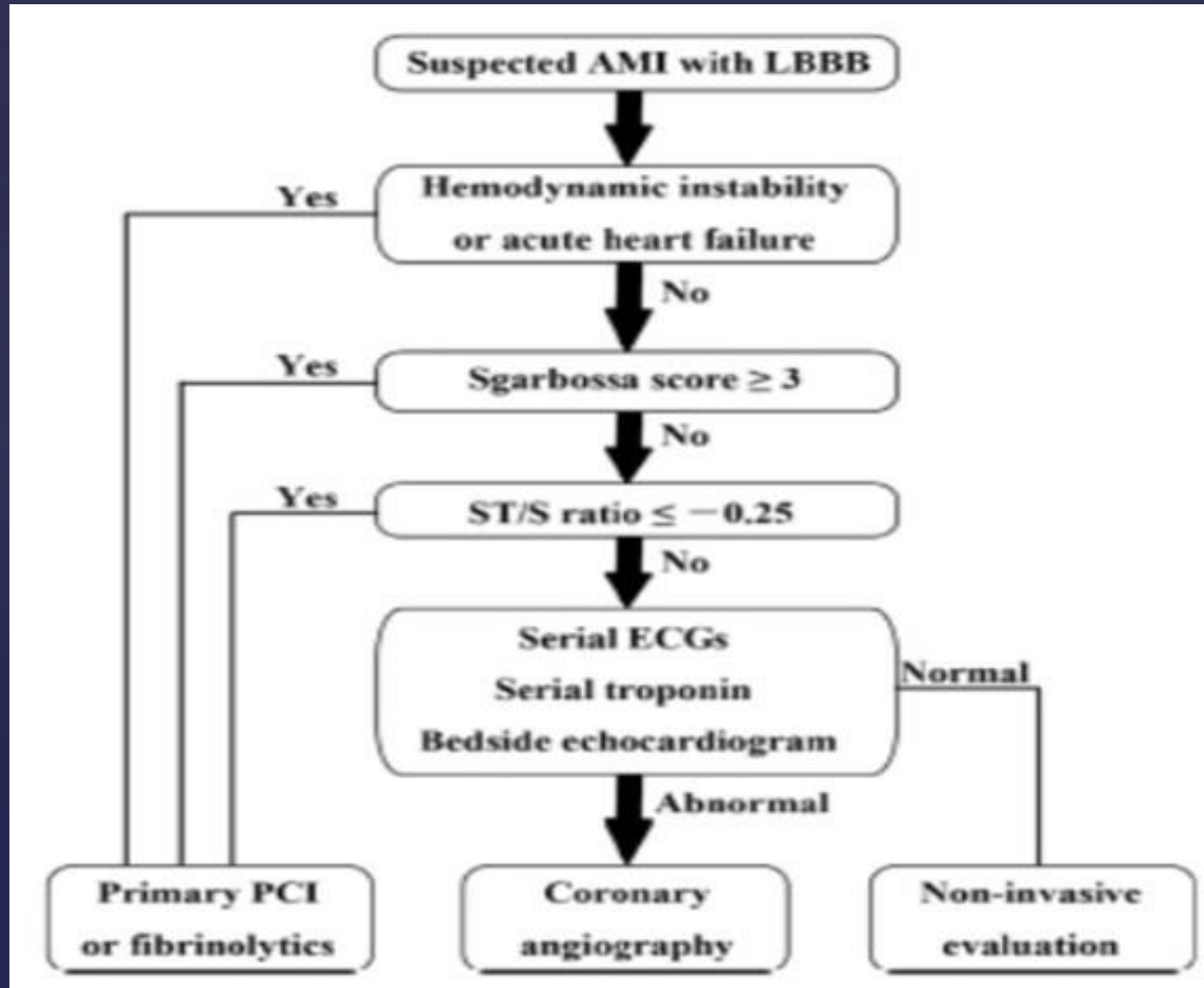
Criterion	Sensitivity percent (95 % CI)	Specificity percent (95 % CI)	Positive likelihood ratio (95 % CI)	Negative likelihood ratio (95 % CI)
ST-segment elevation ≥ 1 mm and concordant with the QRS complex	73 (64–80)	92 (86–96)	9.54 (3.1–17.3)	0.3 (0.22–0.39)
ST-segment depression ≥ 1 mm in lead V1, V2, or V3	25 (18–34)	96 (91–99)	6.58 (2.6–16.1)	0.78 (0.7–0.87)
ST-segment elevation ≥ 5 mm and discordant with QRS complex	31 (23–39)	92 (85–96)	3.63 (2.0–6.8)	0.75 (0.67–0.86)
Positive T wave in lead V5 or V6	26 (19–34)	92 (86–96)	3.42 (0.18–6.5)	0.8 (0.72–0.9)
Left-axis deviation	72 (63–79)	48 (39–57)	1.38 (1.13–9.8)	0.59 (0.25–1.39)

CI confidence interval

TIẾP CẬN CHẨN ĐOÁN



TIẾP CẬN ĐIỀU TRỊ



TIẾP CẬN ĐIỀU TRỊ: TIÊU SỢI HUYẾT

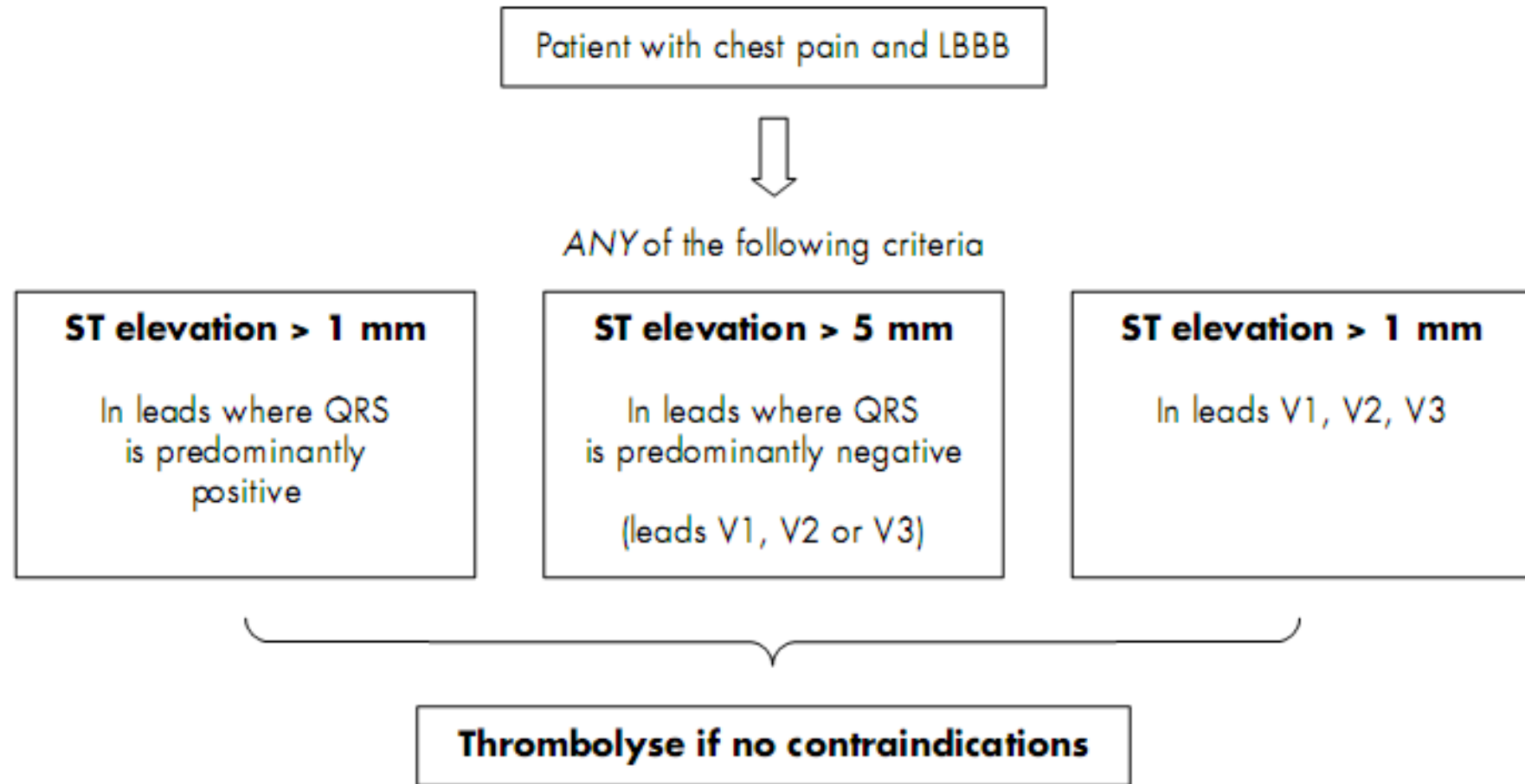


Figure 3 Revised flow chart for the management of patients with chest pain in the presence of left bundle branch block (LBBB)

Table 3 Atypical electrocardiographic presentations that should prompt a primary percutaneous coronary intervention strategy in patients with ongoing symptoms consistent with myocardial ischaemia

Bundle branch block

Criteria that can be used to improve the diagnostic accuracy of STEMI in LBBB⁵⁰:

- Concordant ST-segment elevation ≥ 1 mm in leads with a positive QRS complex
- Concordant ST-segment depression ≥ 1 mm in V_1-V_3
- Discordant ST-segment elevation ≥ 5 mm in leads with a negative QRS complex

The presence of RBBB may confound the diagnosis of STEMI

Ventricular paced rhythm

During RV pacing, the ECG also shows LBBB and the above rules also apply for the diagnosis of myocardial infarction during pacing; however, they are less specific

Isolated posterior myocardial infarction

Isolated ST depression ≥ 0.5 mm in leads V_1-V_3 and ST-segment elevation (≥ 0.5 mm) in posterior chest wall leads V_7-V_9

Ischaemia due to left main coronary artery occlusion or multivessel disease

ST depression ≥ 1 mm in eight or more surface leads, coupled with ST-segment elevation in aVR and/or V_1 , suggests left main-, or left main equivalent- coronary obstruction, or severe three vessel ischaemia

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TIẾP CẬN ĐIỀU TRỊ

Nên xem xét PCI cấp cứu cho BN CÓ TR/CH TMCBCT DẠI DẰNG KÈM LBBB VÀ...

THÔNGIỆP MANG VỀ

- ↳ NMCT kèm LBBB là vấn đề đáng quan tâm hiện nay: khó chẩn đoán, dễ ĐT dưới mức or quá mức, tiên lượng nặng hơn
- ↳ Tiêu chuẩn Sgarbossa là quan trọng giúp chẩn đoán. Ngoài ra, cần chú ý các dấu hiệu gợi ý khác (QS, Smith sửa đổi dấu hiệu Wellen, Cabrera's, động học ECG, giảm biên độ sóng R...)
- ↳ Điều trị tương tự, chú ý tái tưới máu sớm:
 - ⌘ 1) BN không ổn định (tụt HA, phù phổi, huyết động không ổn định) or đau ngực dai dẳng do TMCBCT
 - ⌘ 2) Tiêu chuẩn Sgarbossa phù hợp (≥ 3 điểm)
 - ⌘ 3) Smith sửa đổi theo Tiêu chuẩn Sgarbossa phù hợp



Thank you!

