Practical Cardiology Review Abstract and Self-Assessment

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Edited by

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Finally, we thank our readers for their continued interest and engagement. Your feedback and enthusiasm drive us to strive for excellence in every edition.

Majid Maleki,
Azin Alizadehasl,
Majid Haghjoo,
Saied Dalouchi

CHAPTER 1

EVIDENCE-BASED CARDIOLOGY PRACTICE

ZOHRE MOHAMMADI, MD,
CARDIOLOGIST

Key Points

- Evidence-based medicine (EBM) is the timely, critical, and systematic use of best research evidence in clinical care.
- EBM relies on three principles:
  - Optimal clinical practice requires knowledge of best evidence.
  - Assessing the quality and the trustworthiness of evidence is crucial.
  - Evidence alone is never enough for making a final decision.
- EBM resources help us to find the best evidence.
- Evidence-based clinical guidelines are valuable EBM resources, which are systematically developed statements aiming to help clinicians and patients making decisions about specific clinical situations.
- Evidence alone is never enough to make a clinical decision. Clinical decision-making is a subjective process.

Questions

1. The strength of a recommendation is calculated based on the following, except…?

A. Experience and interpretation.
B. The balance between benefits and harms.
C. Variability in values and preferences.
D. The cost effectiveness.

Answer: A

The strength of recommendation is calculated based on the quality of evidence (above), uncertainty about the balance between benefits and harms of the intervention, variability in values and preferences, and uncertainty about the cost effectiveness of the intervention.

2. Which of the following statements is correct?

A. RCTs are ideal designs for all clinical questions.
B. Finding from an RCT dictate a strong clinical recommendation.
C. Evidence is enough to make a clinical decision.
D. To study prognosis, we rely mostly on the observational studies.

Answer: D

Traditionally, recommendations have been graded by assigning A, B, C, and D, which mostly reflected the quality of evidence according to a hierarchy in which RCTs stood at the top and crude clinical speculation at the bottom. This hierarchy has resulted in widespread debate since its creation. Designing and performing an RCT to address a specific clinical problem is sometimes impossible or irrelevant. For example, to study prognosis, we rely mostly on the observational studies reporting on infrequent adverse events. This hierarchical system of evidence quality also confuses the quality of the evidence with the strength of recommendations because, on the one hand, RCTs are not ideal designs for all clinical questions, and on the other hand, a finding from an RCT does not necessarily dictate a strong clinical recommendation.
Evidence alone is never enough to make a clinical decision. Clinical decision-making is a subjective process.

CHAPTER 2

EVALUATION OF PATIENT WITH CARDIOVASCULAR PROBLEM

SAIED DALOUCHI, MD,
CARDIOLOGIST

Key Points

- Common sign of cardiovascular disorder are chest discomfort, palpitation, dyspnea, syncope, and edema.
- S1 heard louder in any high cardiac output condition (such as fever, pregnancy, hyperthyroidism), MS and short P-R interval. S1 may have heard softer in prolonged P-R interval, calcified MV, severe MR, dilated cardiomyopathy and myocarditis. Its variable in CHB, AF and VT.
- S2 heard louder in systemic or pulmonary hypertension and tachycardia and it heard softer in regurgitation or calcification of AV or PV.
- Jugular Venous Pulse
  - A: atrial contraction. It will be increased when there is any obstruction in RA or RV outflow track (such as TS, RVH, PH, PS). Cannon A wave is produced when atrium and ventricle contract simultaneously during PAC or VT. A wave will be disappeared during AF.
  - C: tricuspid valve closure.
  - X: atrial relaxation. It will be diminished in TR and deeper in constrictive pericarditis.
  - X': continuation of atrial relaxation.
  - V: shows RA filling and starts at the end of systole when TV is still closed. High cardiac output states and ASD may increase V amplitude. TR produces prominent premature wave (CV wave) and diminished X wave.

- Y: rapid filling of RV from RA. Deep Y wave occurs during TR, RV dilation and RV failure. RVH and TS have opposite effect.

Questions

1. Which one of features doesn't match with myocardial infarction chest pain?

A. Doesn't relieved by TNG.
B. Prolong more than 30 min.
C. Exaggerate by inspiration.
D. Vomiting association.

Answer: C

2. Which cardiovascular disorder is more expected in a tall young man with too long arms and legs, out of proportion for the rest of his body?

A. PDA.
B. AI.
C. PH.
D. MS.

Answer: B

In a patient with too long arms, legs, and fingers with an arm span more than the patient's height, marfan syndrome should be consider it is associated with AI.

3. Irregular cannon A wave in jugular vein pulse can be seen in:

A. AF.
B. PVC.
C. AFL.
D. CHB.

Answer: D

A Wave of JVP	
A Wave During Arrhythmia	
AF	Absent A wave
Complete heart block	Irregular canon wave
PVC	Irregular large A wave
VT	Irregular A wave
Atrial flutter	Occasional large A wave
2:1 AV block	Occasional large A

4. Which one is not compatible with this arterial pulse contour?

A. AI.
B. HCM.
C. AS.
D. AS and AI.

Answer: C

Bisferiens pulse with two peaks during systole can be seen in HCM, AI and AS, AI.

5. The paradoxical bulging of LV impulse is seen in:

A. HCM.
B. IHD.
C. Several AI.
D. LVH.

Answer: B

The paradoxical bulging of LV impulse is seen in myocardial infarction with LV apical aneurysm.

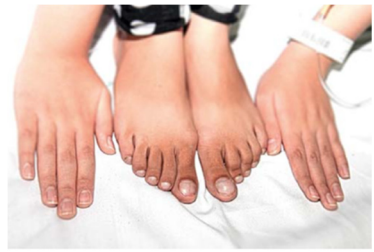
6. Which phrase is incorrect about CV wave in jugular wave pulse?

A. There is a prominent premature V wave.
B. X wave will be disappeared.
C. It's seen as during systole.
D. It's seen as severe TR or PI.

Answer: D

CV wave is created by prominent premature V wave in severe TR during systole. Descending X wave is diminished.

7. What is underlying cardiovascular disease?



A. AS.
B. ASD.
C. PDA.
D. TOF.

Answer: C

The picture shows differential cyanosis. This can be seen in PDA complicated by pulmonary hypertension.

8. Late systolic murmur and continuous murmur respectively are produced by:

A. Acute MR, VSD.
B. AS, TR.
C. PDA, venous hum.
D. MVP, ASD.

Answer: D

MVP and TVP can produce a late systolic murmur. A continuous murmur can be heard in PDA, ASD, AV fistula, venous hum, and coronary artery stenosis.

9. Reversed S2 splitting can be heard in:

A. LBBB.
B. MS.
C. ASD.
D. AI.

Answer: A

Reversed S2 splitting may be heard during LBBB, MR, AS and HCM.

CHAPTER 3

ELECTROCARDIOGRAPHY

ZOHRE MOHAMMADI, MD,
CARDIOLOGIST

Key Points

- Recognition of normal electrocardiography (ECG) findings and normal variants for better interpretation is necessary.
- The ECG is a noninvasive and inexpensive method with acceptable accuracy used for the diagnosis of cardiovascular disorders; therefore, recognition of abnormal ECG findings is mandatory.
- Recognition of technical errors and artifacts that may occur during ECG recording is necessary.
- The JT interval is a more accurate measure of ventricular repolarization, especially in patients with bundle branch block (BBB).
- Box 3.1 and Table 3.1.

Criteria for Distinction Benign Early Repolarization from Pericarditis

In Favor of BER	In Favor of Pericarditis
ST elevation limited to the precordial leads	Generalized ST elevation
Absence of PR depression	Presence of PR depression
Prominent T waves	Normal T-wave amplitude
ST-segment/T-wave ratio <0.25	ST-segment/T-wave ratio >0.25
Characteristic "fish-hook" appearance in V4	Absence of "fish-hook" appearance in V4
ECG changes relatively stable over time	ECG changes evolve over time

BER, benign early repolarization; *ECG*, electrocardiography.

- In biventricular hypertrophy, specific ECG criteria for either RVH or LVH are seldom observed.
- In people with or without overt heart disease, LBBB is associated with a higher risk of mortality and morbidity from myocardial infarction, heart failure, and arrhythmias, such as high-grade AV block.

- Although RBBB may lead to right ventricular dilation and reduced function, it generally is not associated with an increase in risk of cardiac morbidity or mortality.
- Table 3.2.

The Common Diagnostic Criteria for Left and Right Atrial Abnormalities

Left Atrial Abnormalities	Right Atrial Abnormalities
• Prolonged P-wave duration to >120 ms in lead II • Prominent notching of P wave, usually most obvious in lead II, with the interval between notches of >0.40 ms ("P mitrale") • Ratio between the duration of the P wave in lead II and duration of the PR segment >1.6 • Increased duration and depth of terminal-negative portion of P wave in lead V1 (P terminal force) so that area subtended by it >0.04 mm s • Leftward shift of mean P-wave axis to between −30 and −45 degrees	• Peaked P waves with amplitudes in lead II to >0.25 mV ("P pulmonale") • Prominent initial positivity in lead V1 or V2 >0.15 mV (1.5 mm at usual gain) • Increased area under initial positive portion of the P wave in lead V1 to >0.06 mm s • Rightward shift of mean P-wave axis to more than +75 degrees • qR pattern in the right precordial leads without • evidence of MI (but especially with other signs of RV overload) • Low-amplitude (<600 μV = 6mm at usual gain) QRS complexes in lead V1 with a ≥3 increase in lead V2

MI, myocardial infarction; *RV*, right ventricular.
Data from Mann DL, Zipes DP, Libby P, Bonow RO. *Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine*. Philadelphia: Elsevier Health Sciences; 2014.

- Trifascicular block refers to conduction delay in the right bundle branch with delay in either the main left bundle branch or both the left anterior and the left posterior fascicles.
- The beat-to-beat total electrical alternans with sinus tachycardia is a specific but not highly sensitive marker of tamponade physiology.

Questions

1. In which situation is the right QRS axis deviation could not be seen?

A. Lateral wall myocardial infarction.
B. Left posterior fascicular block.
C. Dextrocardia.
D. Primum atrial septal defect.

Answer: D

The initial wave (low amplitude and brief duration, less than 30ms) is positive in leads aVR and V I, and is negative in leads I, aVL, V5, and V6 (representing septal q waves). The QRS pattern in inferior leads may be predominantly upright (qR, rS or RS pattern complexes), and in lead I may be presented as an isoelectric RS pattern or a predominantly upright qR pattern. The normal mean QRS axis in adults is between -30◦ and +90◦.

Causes of QRS Axis Deviation	
Right Axis Deviation	**Left Axis Deviation**
Normal variation (vertical heart with an axis of 90 degrees)	Normal variation (physiologic, often with age)
Mechanical shifts, such as inspiration and emphysema	Mechanical shifts, such as expiration, high diaphragm (pregnancy, ascites, abdominal tumor)
Right ventricular hypertrophy	Left ventricular hypertrophy
Right bundle branch block	Left bundle branch block
Left posterior fascicular block	Left anterior fascicular block
Dextrocardia	Congenital heart disease (primum atrial septal defect, endocardial cushion defect)
Ventricular ectopic rhythms	Emphysema
Preexcitation syndrome (Wolff–Parkinson–White syndrome)	Preexcitation syndromes (Wolff–Parkinson–White)
Lateral wall myocardial infarction	Inferior wall myocardial infarction
Secundum atrial septal defect	Ventricular ectopic rhythms
	Hyperkalemia

Table 3.3

2. In which situation is the J point elevation abnormal and would need more evaluation?

A. J point elevation equals 0.2 in lead V4 in a 30-year-old man.
B. J point elevation equals 0.2 in lead V2 in a 50-year-old man.
C. J point elevation equals 0.25 in lead V2 in a 30-year-old man.
D. J point elevation equals 0.15 in lead V2 in a 50-year-old woman.

Answer: A

The intersection of the end of the QRS complex and the beginning of the ST segment is termed the J point, and it is normally at or near the isoelectric baseline of the ECG. The greatest amplitude of J point is seen in lead V2.

Upper Limits of Normal J-Point Elevation Based on Various Conditions	
Leads V2 and V3	
• Men ≥40 years	0.2 mV
• Men <40 years	0.25 mV
• Women	0.15 mV
Leads (except V2 and V3)	0.1 mV

Table 3.4

3. Regarding ventricular repolarization interval calculation in this ECG, which method is correct?

A. Corrected QT interval based on Bazett's Formula.
B. Corrected QT interval based on Fridericia's formula.
C. Corrected QT interval based on a linear model.
D. JT interval.

Answer: D

The JT interval is a more accurate measure of ventricular repolarization, especially in patients with bundle branch block (BBB). The QT interval is rate dependent, decreasing as the heart rate increases.

Formula for measurement of corrected QT interval:

1. Bazett formula (the QT and RR intervals are measured in seconds): $QTc = QT/RR^{1/2}$.
2. Fridericia's formula (the QT and RR intervals are measured in seconds): $QTc = QT/RR^{1/3}$.
3. Formula based on linear model (intervals are measured in milliseconds): QTc = QT + 1.75 (heart rate – 60).

The formula for measurement of corrected JT interval (in the setting of a BBB):

1. Formula based on QT interval: JTc = QTc _ QRS.
2. JT interval: JT= (HR + 100)/518.

The JT interval equal to or more than 112ms identifies a repolarization prolongation.

4. A 47-year-old man come in with atypical chest pain in your emergency department. The CT angiogram shows normal coronary arteries. Which diagnosis is correct?

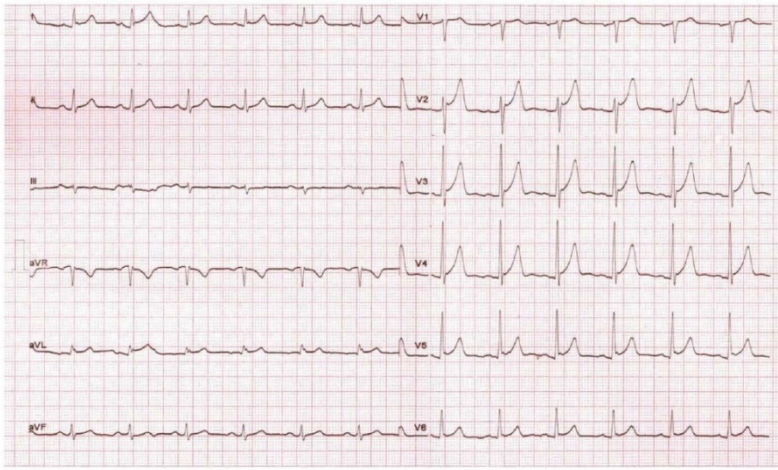


Fig. 3.1

A. Benign early repolarization.
B. Malignant early repolarization.
C. Prinzmetal angina.
D. Acute pericarditis.

Answer: A

The ECG pattern of benign early repolarization (BER) is most commonly seen in young, healthy patients under 50 years of age (Box 3.1). It produces widespread ST segment elevation that may mimic pericarditis or acute MI. BER can be difficult to differentiate from pericarditis because both conditions are associated with concave ST elevation. These two conditions can be distinguished using the ST segment elevation (from the end of the PR segment to the J point) compared to the amplitude of the T wave in V6. An ST segment / T -wave ratio of more than 0.25 suggests pericarditis, but if this ratio is less than 0.25, it is consistent with BER.

Criteria for Benign Early Repolarization

Widespread concave ST-segment elevation, most prominent in the mid to left precordial leads (V2–V5)

Concavity of initial upsloping portion of the ST segment

Notching or slurring at the J point

Prominent, slightly asymmetrical T waves that are concordant with the QRS complexes (pointing in the same direction)

The degree of ST-segment elevation is modest compared with the T-wave amplitude (<25% of the T-wave height in V6; against pericarditis)

ST elevation compatible with criteria in Table 3.5

No reciprocal ST depression to suggest STEMI (except in aVR)

ST changes are relatively stable overtime (no progression on serial electrocardiogram tracings).

Reduction in ST-segment elevation with sympathomimetic factors

STEMI, ST-segment-elevation myocardial infarction.

Box 3.1

Criteria for Distinction Benign Early Repolarization from Pericarditis

In Favor of BER	In Favor of Pericarditis
ST elevation limited to the precordial leads	Generalized ST elevation
Absence of PR depression	Presence of PR depression
Prominent T waves	Normal T-wave amplitude
ST-segment/T-wave ratio <0.25	ST-segment/T-wave ratio >0.25
Characteristic "fish-hook" appearance in V4	Absence of "fish-hook" appearance in V4
ECG changes relatively stable over time	ECG changes evolve over time

Table 3.5

5. Which of the following statements is not correct about the U-wave of the ECG?

A. Mainly present in leads V2– V4.
B. It is usually seen in the setting of bradycardia.
C. It is less seen in inferior leads than other leads.
D. It is a low amplitude wave.

Answer: C

A U-wave may be seen in some leads, predominantly in leads V2– V4. This wave is present in the setting of bradycardia, with an amplitude of less than

0.2 mV.

6. Based on the following ECG, what is your diagnosis?

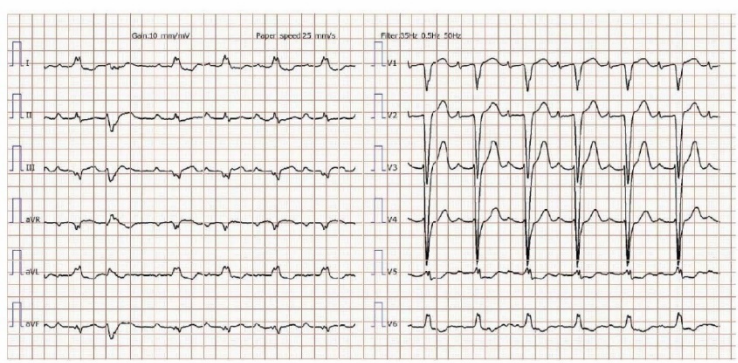


Fig 3.2

A. Left ventricular hypertrophy.
B. Hypertrophic cardiomyopathy.
C. Dilated cardiomyopathies.
D. Biventricular hypertrophy.

Answer: C

The presence of a relatively low limb voltage (QRS voltage <0.8 mV in each of the limb leads) accomplished with a relatively prominent QRS voltage in the precordial leads (S V1 or S V2 + R V5 or R V6 >3.5 m V) and poor R wave progression in the pericardial leads suggest DCM. These changes are relatively specific but not a sensitive sign for DCM.
7. Which of the following is not compatible with right atrial abnormalities?

A. Rightward shift of mean P wave axis to more than +75 degrees.
B. Increased duration and depth of terminal-negative portion of P wave in lead V l (P terminal force) such that area subtended by it is >0.04 mm-sec.
C. qR pattern in the right precordial leads without evidence of myocardial infarction (especially with other signs of RV overload)
D. Low-amplitude (600 μV = 6 mm at usual gain) QRS complexes in lead V l with a ≥3 increase in lead V2.

Answer: B

The three general categories of P wave that can alter atrial activation to produce abnormal P wave patterns are: abnormal patterns of activation and conduction, left atrial abnormalities, and right atrial abnormalities. The common diagnostic criteria for left and right atrial abnormalities are listed in Table 3.6.

Left atrial abnormality: Anatomical abnormalities of the left atrium that alter the P waves include atrial dilation, atrial muscular hypertrophy, and elevated intra-atrial pressures. The most common conditions that lead to left atrial enlargement include hypertension, valvular heart diseases, heart failure and atrial fibrillation.

Right atrial abnormality: Right atrial abnormality is a marker of the severity of the disease, and also predicts outcome in some disorders, including tricuspid regurgitation, pulmonary hypertension, congenital heart disease, and right heart failure. Enlargement of the right atrium may result from right atrial volume or pressure load.

Biatrial abnormality: ECG pattern findings include large biphasic P waves in lead VI and tall and broad P waves in leads II, III, and a VF.

The Common Diagnostic Criteria for Left and Right Atrial Abnormalities

Left Atrial Abnormalities	Right Atrial Abnormalities
• Prolonged P-wave duration to >120 ms in lead II • Prominent notching of P wave, usually most obvious in lead II, with the interval between notches of >0.40 ms ("P mitrale") • Ratio between the duration of the P wave in lead II and duration of the PR segment >1.6 • Increased duration and depth of terminal-negative portion of P wave in lead V1 (P terminal force) so that area subtended by it >0.04 mm s • Leftward shift of mean P-wave axis to between −30 and −45 degrees	• Peaked P waves with amplitudes in lead II to >0.25 mV ("P pulmonale") • Prominent initial positivity in lead V1 or V2 >0.15 mV (1.5 mm at usual gain) • Increased area under initial positive portion of the P wave in lead V1 to >0.06 mm s • Rightward shift of mean P-wave axis to more than +75 degrees • qR pattern in the right precordial leads without • evidence of MI (but especially with other signs of RV overload) • Low-amplitude (<600 μV = 6mm at usual gain) QRS complexes in lead V1 with a ≥3 increase in lead V2

Table 3.6

8. In a patient with right ventricular hypertrophy (RVH), which of these options correlates more closely to right ventricular volume overload compared with severe concentric RVH?

A. Tall R waves in anteriorly and rightward-directed leads (leads aVR, V1, and V2).
B. rSr' pattern in V1.
C. Deep S waves and small r waves in leftward-directed leads (I, aVL, and lateral precordial leads).
D. Shift in the frontal plane QRS axis to the right.
E. Presence of S waves in leads I, II, and III (the S1S2S3 pattern).

Answer: B

The common diagnostic criteria for RVH and the ECG criteria for RVH based on its severity are listed in Box 3.2 and Tables 3.7. Evidence of true RVH in patients with chronic obstructive pulmonary disease includes a positive right axis deviation of more than 110 degrees, deep S waves in the lateral precordial leads, and an S1Q3T3 pattern. Hyperinflation of the lungs in these patients could cause a decrease in the amplitude of the QRS complex, right axis deviation, and delayed transition in the precordial leads even in the absence of RVH.

The Common Diagnostic Criteria for Right Ventricular Hypertrophy

- R in V1 $\geq$0.7 mV
- QR in V1
- R/S in V1 >1 with R >0.5 mV
- R/S in V5 or V6 <1
- S in V5 or V6 >0.7 mV
- R in V5 or V6 $\geq$0.4 mV with S in V1 $\leq$0.2 mV
- Right axis deviation (>90 degrees)
- S1Q3 pattern
- S1S2S3 pattern
- P pulmonale

Data from Murphy ML, Thenabadu PN, de Soyza N, et al. Reevaluation of electrocardiographic criteria for left, right and combined cardiac ventricular hypertrophy. *Am J Cardiol.* 1984;53(8):1140–1147.

Box 3.2

Electrocardiography Criteria for Right Ventricular Hypertrophy Based on Severity

Moderate to Severe Concentric RVH	Less Severe Hypertrophy (Limited to the Outflow Tract of the Right Ventricle[a])
• Tall R waves in anteriorly and rightward-directed leads (leads aVR, V1, and V2) • Deep S waves and small r waves in leftward-directed leads (I, aVL, and lateral precordial leads) • A reversal of normal R-wave progression in the precordial leads • Shift in the frontal plane QRS axis to the right • Presence of S waves in leads I, II, and III (the S1S2S3 pattern)	• rSr′ pattern in V1 • Persistence of s (or S) waves in the left precordial leads

Table 3.7

9. Based on the following ECG, which of these statements is not correct?

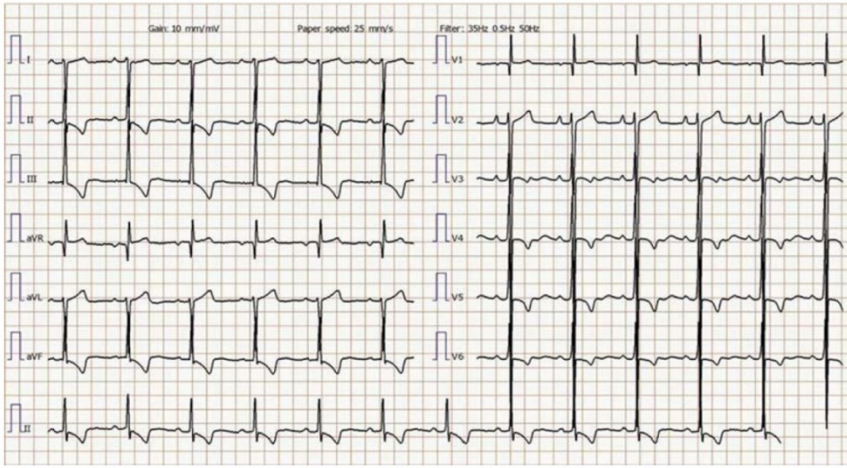


Fig. 3.3

A. It suggests the Katz–Wachtel phenomenon.
B. Left axis deviation is more common.
C. It shows the presence of both RVH and LVH.
D. Mostly, the precordial transition zone is shifted to the left.

Answer: B

In biventricular hypertrophy, specific ECG criteria for either RVH or LVH are seldom observed. In the ECG of these patients, evidence of LVH with the below criteria was seen:

1. Tall R waves in the right and left precordial leads.
2. Vertical heart position or right axis deviation.
3. Deep S waves in the left precordial leads.
4. Shift in the precordial transition zone to the left.

In patients with congenital heart defects (e.g., ventriculoseptal defect) and RVH, the presence of combined tall R waves and deep S waves in leads V2–V4 with a combined amplitude greater than 6.0 mV suggests the presence of LVH (Katz–Wachtel phenomenon).

10. Regarding interventricular conduction delay, which of these following statements is not correct?

A. LAFB is common in persons without overt cardiac disease.
B. LPFB is unusual in healthy persons.
C. LBBB is associated with an increase in risk of cardiac morbidity or mortality only in persons with overt heart disease.
D. RBBB may lead to right ventricular dilation and reduced function.

Answer: C

Left anterior fascicular block (LAFB): LAFB is probably the most common cause of left axis deviation and is common in persons without overt cardiac disease. The most characteristic finding is marked left axis deviation.

Left posterior fascicular block (LPFB): LPFB is unusual in found in a healthy person, and it occurs in patients with any cardiac disease.

Left bundle branch block (LBBB): The mean QRS axis can be normal, deviated to the left, or deviated to the right. In most cases, the ST-T segments are discordant with the QRS complex. LBBB has significant prognostic implications. In persons with or without overt heart disease, LBBB is associated with a higher risk of mortality and morbidity from myocardial infarction, heart failure, and arrhythmias, such as high-grade AV block.

Right bundle branch block (RBBB): In contrast to LBBB, RBBB is a common finding in the general population. A RBBB pattern was seen in many persons without overt structural heart disease. In healthy individuals, although RBBB may lead to right ventricular dilation and reduced function, it generally is not associated with an increase in risk of cardiac morbidity or mortality. Incomplete RBBB, produced by lesser delays in conduction in the right bundle branch system, may be caused by RVH (especially with a rightward QRS axis) without intrinsic dysfunction of the conduction system.

11. Which of the following statements defines complete trifascicular block?

A. LBBB and first-degree AV block.
B. LBBB and second-degree AV block.
C. Alternating RBBB and LBBB patterns.
D. LBBB and third-degree AV block.

Answer: D

Trifascicular block refers to conduction delay in the right bundle branch with delay in either the main left bundle branch or both the left anterior and the left posterior fascicles. The ECG patterns can be divided into incomplete and complete trifascicular block. The incomplete (impending) trifascicular block includes bifascicular block with first-degree AV block (the most common form), bifascicular block with second degree AV block, RBBB plus alternating LAFB and LPFB, and alternating RBBB and LBBB patterns. Complete trifascicular block is referred to as bifascicular block plus third-degree AV block.

12. Regarding Rate-dependent conduction blocks, which of the following statements is not correct?

A. These blocks can be observed at relatively high or low heart rate.
B. Deceleration –dependent block occurs when the heart rate falls below a critical level.
C. Deceleration-dependent block is less common.
D. Acceleration-dependent block is usually seen only in patients with significant conduction system disease.

Answer: D

These blocks can be observed in relatively high or low heart rates. In acceleration (tachycardia)-dependent block, conduction delay occurs when the heart rate exceeds a critical value. While deceleration (bradycardia)-dependent block, conduction delay occurs when the heart rate falls below a critical level. Deceleration-dependent block is less common than acceleration-dependent block and usually is seen only in patients with significant conduction system disease.

13. Regarding the following ECG, what is your diagnosis?

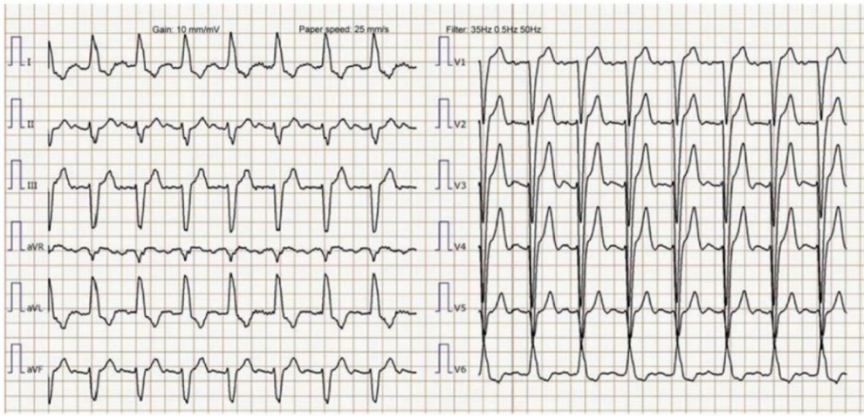


Fig. 3.4

A. Complete trifascicular block.
B. Incomplete trifascicular block.
C. Bifascicular block.
D. Sinus tachycardia and bifascicular block.

Answer: B

Note the presence of the left bundle branch block accomplished with first-degree atrioventricular block, which indicates an incomplete trifascicular block. The QRS left axis deviation in this electrocardiogram indicates more severe conduction system disease.