Rate 70  AV dissociation mean V-rate = 70
PR  Consider left atrial enlargement
QRSD 85  Borderline low voltage in frontal leads
QT 435  Diffuse T wave abnormalities
QTc 469  Cannot exclude ischemia

--AXIS--
P  Ind.
QRS 66
T  80

- ABNORMAL ECG
The majority of the computer diagnoses are incorrect! The rhythm is normal sinus rather than AV dissociation. The QT interval is markedly prolonged (0.60 sec.), with both a delayed onset of the T wave after the QRS, and a broad T wave.

Despite the low-voltage in the frontal plane, the precordial leads show QRS amplitude consistent with left ventricular hypertrophy. The prolonged interval of "Q to the onset of the T wave" (QoT) is characteristic of hypocalcemia. In this woman, the calcium level was 7.8 mg % - - cause unknown.
November 2017
42 Year old man.

Tracing 2

Your observations?
This man developed papillary carcinoma of the thyroid as a teenager, and in addition to surgery, was treated postoperatively with mediastinal radiation. Subsequently, he developed LBBB, evidence of significant aortic stenosis, and restrictive myocardial dysfunction. Aortic valve replacement was performed and, at the time of his surgery, the valve was thickened and fibrotic (secondary to radiation injury?). There was a white patch over the pericardium and aortic root that appeared identical to the anterior radiation port.

On to the patient's EKG. There is sinus tachycardia at 110/min with variable AV conduction and the "downstream" conduction abnormality of complete LBBB. The rhythm disturbance is depleted in the ladder diagram. This is an example of "bilevel AV block". There is 2:1 block of alternate P waves, presumably at a high level in the AV junction. At a lower level, there is Wenckebach prolongation until a dropped beat occurs. (2 of the stimuli which reach the lower AV junction are conducted; the third is blocked). Then, of interest, the previously "nonconductive" P wave is transmitted and the alternating sequence continues. This intriguing variety of AV Wenckebach termed "leapfrog Wenckebach block" by Dr. Alan Lindsay. In this man, radiation injury has led to disturbed impulse conduction both at the AV junction and within the IV conduction network.
57 Year old man. “Please take the EKG while I’m sitting in my chair.”

Tracing 3

Your observations?
November 2017

57 Year old man. “Please take the EKG while I’m sitting in my chair.”

Tracing 3: Answer

Your observations?

The EKG technician should always alert the clinician if the tracing was not obtained with the patient recumbent.

When recorded lying on the side, and particularly when sitting, the change in cardiac position can alter the recording significantly. In the top tracing, the rhythm is sinus bradycardia at 45/min. The left axis deviation of (-) 60° is probably due to a prior inferior infarction. The negative T waves in leads I and aVL are abnormal and the QS pattern in leads V4-V6 is consistent with a lateral M.I of uncertain age.

When the tracing was repeated in recumbency, the frontal plane T waves are upright in I and aVL and the pattern of the lateral infarction is no longer present.
The most evident concern is?
A text book example of the “McGinn-White” EKG. They described a pattern of “S1 -- Q3 --T3” and regarded it as indicative of acute cor pulmonale. The prominent precordial T wave inversion and the long QT-U interval is further evidence of this young woman’s serious pulmonary embolization.
November 2017

65 Year old man.

Tracing 5

Do you agree with the computer?

12/1 - 17:45

12/1 - 17:59 - Does this help?
The tachycardia is due to a typical AV nodal reentrant mechanism. Note the prominent “pseudo S waves” in leads II, III, and aVF; and the “pseudo R waves” in V1.

The bottom strips show that these are absent during sinus rhythm. The computer has misinterpreted the combination of the initial R+ the pseudo R’ as a “wide complex”, but assigns the cause to a “non-specific IVCD”. The early QRS transition and the broad initial R waves in V1-3 point to a posterior infarction - age uncertain.
November 2017

74 Year old woman.

Tracing 6

She asks: “Please treat me with _____” ??

Home
She asks: “Please treat me with _____” ??

The computer will hone in on the irregular R-R cycles and diagnose “atrial fibrillation”. However, there are obvious multiple and multiform P waves, and the correct rhythm diagnosis is multifocal atrial tachycardia. The QRS axis of (+) 90° and the delayed precordial QRS progression are consistent with advanced COPD -- the most common cause of this arrhythmia. The most effective and safest treatment to suppress the multiple ectopic atrial pacemakers is incremental IV doses of calcium channel blocker -- verapamil or diltiazem.
November 2017
38 Year old man.

BONUS Tracing

Possibilities:
1. "End-diastolic VPCs"??
2. WPW Complexes??
3. Aberrantly conducted APCs??

---

The electrocardiogram (ECG) shows a tracing of a 38-year-old man. The ECG tracing includes leads I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, and V6. The tracing exhibits a pattern consistent with possible arrhythmias, including end-diastolic ventricular premature complexes (VPCs), WPW complexes, and aberrantly conducted atrial premature complexes (APCs).

---

Note: The exact interpretation of the ECG requires clinical correlation and may vary based on the patient's medical history and other diagnostic tests. This diagnosis is based on the visual inspection of the ECG tracing.
The P-P cycle is regular and there are no APCs, so we can easily eliminate choice #3. “End-diastolic VPCs” are those that are late enough that the sinus P wave has occurred. Although the P-QRS relationship is coincidental, the P waves may contribute to ventricular activation with a ventricular fusion complex resulting.

I doubt that choice #1 is the explanation (but it might be). Despite the normal PR interval, the prominent "delta slur" on the QRS upstroke would favor #2. Unfortunately, this was the only tracing available on this patient.

If you didn’t care to participate in this exercise, please note that D.I.I.K. = darned if I know and D.I.I.C. = darned if I care!