ECG Interpretation Workshop

Putting it ‘ALL’ together!

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“Preoperative Assessment”
Anesthesia is worried about a previous MI! Are you?
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The main abnormality shown on this ECG is

1. Right ventricular hypertrophy
2. Left posterior fascicular block
3. An old (remote) lateral wall infarct
4. Limb lead misplacement
5. Acute pulmonary embolism
Interesting! I just got a pacemaker implanted this past month, but I’m still dizzy and keep fainting! I wonder why?
The main abnormality shown on this ECG is:

1. 3rd degree atrio-ventricular block

2. Intermittent demand v-pacing with normal pacer function

3. V-paced rhythm with failure to capture

4. V-paced rhythm with failure to sense

5. V-paced rhythm with failure to both capture and sense
Pacemaker fails to sense (undersenses) and as a result fails to pace when required. Pacer spikes seen on the surface ECG, but there is no ‘capture’ – intermittent failure to capture.
“Preoperative Assessment”
This time it’s a young man admitted for hernia repair. Anesthesia is very worried. What is your next step?
The main abnormality shown on this ECG is

1. Dextrocardia
2. Left posterior fascicular block
3. An old (remote) lateral wall infarct
4. Limb lead misplacement
5. Acute pulmonary embolism
This pattern is consistent with the previous ECG seen showing lead placement error.

There is R wave regression with nearly absent R wave in V₅-V₆. This is consistent with dextrocardia.
A middle-aged man with heart failure was admitted with nausea, vomiting and seeing yellow ‘halos’. He was recently started on a new medication 6 months
The main abnormality shown on this ECG is

1. Atrial fibrillation
2. Paroxysmal supraventricular tachycardia
3. Atrial tachycardia with 2:1 block
4. Atrial flutter
5. Sinus tachycardia
Young lady! Anxious, diaphoretic and very dizzy. According to spouse, she fainted earlier at home? Are you worried?
The main abnormality shown on this ECG is:

1. Polymorphic ventricular tachycardia
2. Atrial fibrillation with right bundle branch aberrancy
3. Pacemaker-mediate tachycardia
4. Pre-excited atrial fibrillation
5. Ventricular flutter
Ultra-short R-R cycle length (physiologically impossible to sustain through the AV node and native conduction system)

Highly irregular R-R interval characteristic of AF

Wide-QRS complex with a slurred upstroke and a sharp down stroke. The wide upstroke is due to a $\delta$ wave
Another ‘dizzy’ patient who just fainted at home! This time, he’s a 89-year-old man. Send him home?
The main abnormality shown on this ECG is

1. Right ventricular hypertrophy
2. An old (remote) posterior infarct
3. Right bundle branch block
4. Trifascicular block
5. Bifascicular block
It must be an epidemic! Another ‘fainter’, but this time, she’s a middle-aged lady on dialysis who was started recently on Sotalol for symptomatic atrial fibrillation.
The main abnormality shown on this ECG is

1. Intermittent sinus pause with ventricular escape rhythm
2. Torsades de pointes
3. 3rd degree atrio-ventricular block with ventricular ectopics
4. Aberrantly conducted non-sustained atrial tachycardia
5. Pre-excited atrial fibrillation
Long-Short initiation sequence

‘markedly’ prolonged QT interval with an R-on-T phenomenon

A self-terminating run of polymorphic VT with ‘twisting QRS axis’
Elderly lady in the emergency room with nausea, vomiting and abdominal pain. The emergency physician was worried about this ECG. Are you worried too?
The main abnormality shown on this ECG is

1. Sinus arrest with ventricular escape rhythm

2. Atrial fibrillation with complete atrioventricular block

3. Atrial fibrillation with a v-paced rhythm with normal sensing and capture

4. Atrial fibrillation with non-specific intraventricular conduction delay
Erratic atrial activity consistent with atrial fibrillation

V-paced rhythm at a preset rate of 60/min with normal sensing and capture
Elderly lady weak and breathless for days was brought in by son because today she was very dizzy and … !!
The main abnormality shown on this ECG is

1. 2:1 atrioventricular block

2. Sinus bradycardia

3. Intermittent pauses due to non-conducted APB

4. Sinus arrest with intermittent ventricular pacing

5. Sinus rhythm with aberrantly conducted APB
Wide complex escape rhythm suggesting a distal (infrahisian) site of block
Young man with a strong family history of sudden death presented to the hospital with palpitations and severe fatigue while jogging on the treadmill. What do you see?
The main abnormality shown on this ECG is:

1. Ventricular bigemini
2. Aberrantly conducted atrial bigemini
3. Bi-directional ventricular tachycardia
4. Polymorphic ventricular tachycardia
5. WPW-alternans
Two alternating QRS morphologies, both of ventricular origin

P-waves marching through independently from the ventricular activity (AV dissociation)