Multiple Choice Questions

Chapter 4 – Active Supraventricular Arrhythmias

For each question choose the correct option(s).

4.1 When can the P'R interval of a premature supraventricular complex be longer than 0.20 s?

A. In a sinus bradycardia
B. When the premature supraventricular complexes are frequent
C. When the P' wave occurs during the relative refractory period of the AV junction
D. Never

4.2 Junctional reentrant paroxysmal tachycardia with an exclusive junctional circuit (AVNRT) is recognizable because during the tachycardia the following is often seen on the ECG when compared with a baseline ECG:

A. A wide QRS complex
B. Alternant QRS complexes
C. A morphology in V₁ with a final r' wave because the P' wave is recorded quite close to the final portion of the QRS complex
D. A P' wave before the QRS

4.3 Which are the changes that sympathetic overdrive causes in the ECG recording?

A. QRS complex alternance
B. More flattened P and T waves
C. PR and ST segments that form an arch with its center in the lower third of the descending R wave
D. ST segment upward deviation with asymmetrical T wave
4.4 What would your diagnosis be in the case of a regular supraventricular tachycardia at 180 beats per minute (bpm) with a P wave (rate \( \approx 100 \) bpm) dissociated from the QRS complex (rate \( \approx 150 \) bpm)?

A. Atrial flutter with variable conduction  
B. Junctional tachycardia caused by an ectopic focus  
C. Reentrant junctional paroxysmal tachycardia  
D. Chaotic atrial tachycardia

4.5 It is a case of paroxysmal tachycardia with a rate of 170 bpm in a young individual with no underlying heart disease, with a narrow QRS complex and RP′<P′R. The P′ wave (recorded within the ST segment) is well separated from the QRS complex and is negative in lead I. No other atrial waves are seen. What kind of tachycardia is this?

A. Reentrant tachycardia in a patient with Wolff–Parkinson–White syndrome (right accessory pathway)  
B. Reentrant tachycardia in a patient with a Wolff–Parkinson–White syndrome (left accessory pathway)  
C. Junctional (AV nodal) reentrant tachycardia (AVNRT)  
D. 2x1 atrial flutter

4.6 How can variable FR intervals be explained in atrial flutter with regular RR intervals at a ventricular rate of 85 bpm?

A. A variable FR relationship is secondary to an atypical atrioventricular Wenckebach phenomenon  
B. Flutter F waves + monomorphic atrial tachycardia  
C. Flutter F waves + dissociated junctional tachycardia caused by an ectopic focus  
D. Flutter F waves + sinus tachycardia
4.7 Which of the following prerequisites is characteristic of a parasystolic premature ventricular complex?

A. A fixed coupling interval  
B. Left bundle branch block morphology  
C. A variable coupling interval  
D. A qR-type QRS complex morphology

4.8 In the case of premature complexes with a narrow QRS complex, which of the following morphologies in V₁ is more in favor of there being an aberrancy?

A. rsR'  
B. QS  
C. R  
D. QR

4.9 Figure 6 shows an ECG from a 52-year-old patient with no structural heart disease presenting with a tachyarrhythmia with alternating wide and narrow QRS complexes. Which is the correct diagnosis?

A. Classic ventricular tachycardia runs  
B. Atrial fibrillation runs with conduction aberrancy  
C. Atrial fibrillation in the presence of Wolff–Parkinson–White syndrome  
D. Parasystolic ventricular tachycardia runs
4.10 The ECG seen in Figure 7 below is from a patient with atrial fibrillation (lead V₆).

![ECG Image](image)

There is an isolated complex (8th) and, after it, a couple of QRS complexes (11th and 12th) and a triplet of wide QRS complexes (14th, 15th, and 16th) with an evident S wave. What mechanism explains the presence of these wide QRS complexes?

A. Premature ventricular complex, couple, and run of ventricular tachycardia  
B. Classic Phase 3 aberrancy  
C. Phase 3 aberrancy in the isolated wide QRS complex as well as in the first complex of the couple (11 and 14), followed by a run. The other wide QRS complexes are probably explained by retrograde concealed conduction in the right bundle branch  
D. Respiratory artifacts

4.11 You have a patient of 30 years of age with no underlying heart disease; palpitations are the only symptom. The surface ECG (see V₁, II, and V₅ in Fig. 8 as well as the Holter recording presents short and repetitive tachycardia runs with narrow QRS complexes that are related to the baseline sinus rhythm shortening.
Fig. 8
What is the correct diagnosis?

A. Incessant focal atrial tachycardia
B. Macro-reentrant atrial tachycardia
C. Incessant junctional reentrant tachycardia
D. Inappropriate sinus tachycardia

4.12 You have a healthy 35-year-old patient presenting with palpitations. The Holter recording shows very fast runs with wide complexes and a morphology similar to that of ventricular flutter (Fig. 9).

Fig. 9

Which is the correct diagnosis?

A. Self-limited ventricular flutter
B. 1x1 atrial flutter with conduction aberrancy through the left bundle branch
C. 1x1 atrial flutter conducted through an anomalous pathway
D. Recording artifacts

4.13 Shown in Figure 10 is an ECG from a 15-year-old patient with the history of a surgical procedure to correct a total anomalous vein drainage, presenting a macro-reentry supraventricular tachyarrhythmia.

![Fig. 10](image)

Which type of atrial wave is shown in this tracing? What is the correct diagnosis?

A. Common flutter  
B. Reverse (or inverse) flutter  
C. Atypical atrial flutter  
D. Macro-reentrant atrial tachycardia

4.14 Shown in Figure 11 is an ECG from a 75-year-old patient with mitral valve disease and advanced ischemic heart disease (history of coronary artery bypass graft (CABG) with three bypasses).

![Fig. 11](image)

Episodes of rapid palpitations at 150 bpm are referred [A) ECG tracing: lead II at rest.  
B) after carotid sinus compression]. What is the correct diagnosis?

A. Junctional reentrant paroxysmal tachycardia with an exclusively junctional circuit (AVNRT)
B. Supraventricular paroxysmal tachycardia in the presence of Wolff–Parkinson–White syndrome (AVRT)
C. Ectopic atrial tachycardia with a 2:1 AV block
D. 2:1 atrial flutter

4.15 Your patient is a young girl (25 years old) weighing 50 kg, with previous episodes of supraventricular tachycardia that began a few years ago. She arrives at the emergency department with a new episode at 170 bpm that started 3 h before with very unpleasant palpitations, but no hemodynamic impairment.

The patient has already coughed at the beginning and taken 450 mg propafenone (pill-in-the-pocket), which had stopped the episode several times in the past.

The ECG shows a notch at the end of the QRS that was not present in the baseline ECG that suggests that the mechanism of the tachycardia is junctional reentrant tachycardia with a circuit exclusively in the AV junction (AVNRT).

What is the best procedure?

A. Proceed to urgent cardioversion (CV)
B. Wait and see what happens during 1–2 h and wait for propafenone to take effect
C. Proceed to give adenosine intravenously
D. Proceed to start with a bolus of amiodarone, followed by a perfusion

4.16 You have a patient aged 55 years with hypertensive heart disease but no heart failure who presented with persistent chronic atrial fibrillation (see Chapter 4). The first episodes started a few months ago and he had other paroxysmal episodes. The current episode started 6 days ago and it is relatively well tolerated. The echocardiogram shows an left atrium (LA) of 49 mm. What is the best procedure?

A. Control heart rate and proceed to an elective previous anticoagulation CV
B. Perform urgent CV
C. Control heart rate, start anticoagulation, and prescribe previous to elective CV a pre-treatment during 3 weeks with amiodarone and angiotensin converting enzyme 1 (ACE-1)
D. Perform a catheter ablation immediately
4.17 You have a patient who is 48 years old with no heart disease who presents with some episodes of paroxysmal atrial fibrillation (PAF) at night (one every 3–6 months) which stop spontaneously after a few hours.

What is the best procedure?

A. Start antiarrhythmic preventive treatment with flecainide
B. Start antiarrhythmic preventive treatment with amiodarone
C. Advise him not to drink wine, especially in the evening, or when doing so to take preventive treatment (propafenone) and not go to sleep immediately after dinner. Advise him to cough immediately if the episode starts, and take the pill-in-the-pocket approach (see Chapter 4)
D. To advise ablation as a first option